MEDICAL REPOSITORY,

FOR

MAY, JUNE, AND JULY, 1804.

ARTICLE I.

OBSERVATIONS *on* CHOREA SANCTI VITI, *with a new Theory of the Disease: Communicated by* JOHN REDMAN COXE, *M. D. of Philadelphia, in a Letter to Dr.* MILLER.

JOHN MAGNUS, aged 40, a taylor by profession, of a full habit and sanguine temperament, about June, 1801, began first to complain of irregular or convulsive motions of the head, mouth and hands. It appears that he has, for a long time previous to this, had irregular motions of his hands and head, which gave him no concern. About two years ago he laboured under syphilis. At his first application for assistance he was advised to abstain from liquor, to take regular exercise both morning and evening, and to avoid costiveness, and sitting up so late at night at work as usual. This advice he neglected; and in about two weeks fever supervened, with great costiveness, which was removed by Glauber's salts, and the occasional use of aloetic pills. His complaints augmented, and in about a fortnight more he began to complain of stupor and giddiness of the head. His pulse was frequent and quick, but not full. He was bled to fourteen ounces, and took senna, manna, &c. The giddiness still continued, and pain began again to recur in a few days, with almost constant coma and stupor. He was again bled, and purged with jalap and calomel. Stramonium, boiled in vinegar, was ordered to bathe his head, and poultices of the same were applied to his feet every night, which appeared to relieve him much. The good effects gradually subsided, and its further use was omitted.

Previously to the last bleeding, in July, he complained much of weakness of the eyes, attended with a dull pain and slight inflammation. A wash of sugar of lead and white vitriol was prescribed, and six leeches to the temples, which all died soon after sucking. A soreness of the nose and throat rendering

it probable that his syphilitic complaint had not been completely cured, he was put, for a short time, on the use of the opium and calomel pills.

As each bleeding appeared to weaken him, leaving him more stupid for upwards of a day, the lancet was employed more cautiously. All this time his appetite was remarkably good, and so continued till near the close of his illness. He still grew worse, and an involuntary discharge of urine took place. The stupor appearing considerable, and his pulse being fuller, with skin hot and bloated face, and irregular motions continuing, he was bled to eighteen ounces, after which he seemed much weaker the first day, but less stupid. He took nitrous powders for about a week, but seemed no better, except in an abatement of his fever. His pulse became weaker, but not less frequent. He now took valerian in ʒ ss. doses, and gradually increased it to ʒ i. thrice a day. This, continued for a week, gave no relief, and it was then combined with snake-root eight or nine days longer, with little effect; during which period he was blistered three or four times. He now began to complain of increase of pain in his head and back, and repeated the antimonial powders.

The above account I received from the apothecary of the Dispensary, who, at this period, requested me to visit him. I recommended the continuance of the antimonial powders, with the addition of small doses of camphor, and applied cups to the temples, neck, and adjacent parts, and a large blister to the head. The preceding blisters were dressed with mercurial ointment, which was likewise employed in friction. His mouth became sore, and slight salivation ensued.

After pursuing the above plan for some time, it was discontinued, and columbo, rust of iron, and rhubarb, were given for some days with no beneficial effect. The blisters were repeated.

On the 14th September the leading symptoms were increased; pulse quicker; skin hot: ordered to lose fourteen ounces of blood in the afternoon. In the evening very feeble, with increased flow of urine. He appeared somewhat better the 15th. As he was costive, the laxative ingredients were ordered, and he was blistered behind the ears. In the evening he seemed better, with moist skin, weak pulse, and continued increase of urine. The nitrous powders were continued. He was slightly delirious on the 18th; pulse fuller and irregular. The powders were continued. On the 19th, pulse regular but feeble; continue powders, and give a tonic medicine of bark, Port

wine, and laudanum. In consequence of the increase of febrile symptoms, he soon after lost eighteen ounces of blood. The medicines were continued till the 28th of November. From the recommendation of the Medical Repository, Hex. I. vol. v. p. 95, as extracted from Hufeland's Journal, I began the use of phosphorus in the following manner, after he had for a week omitted all his medicines.

October 4th. ℞ Phosphorus 2 grs. laudanum gtt. 40, white sugar ʒ ij. gum arab. ℈i. Rub them well together in a glass mortar, and add tr. of cinnamon ʒ i. water, &c. Make ʒ 8. Of this he was directed to take a table-spoonful every hour. He began it in the evening.

5th. Symptoms continue; no apparent effect from the medicine.

6th. Pulse generally from 80 to 100; symptoms as yesterday. Bowels open; appetite good; has taken about one grain of phosphorus in the last 24 hours; repeat it to two grains in 24 hours.

7th. Convulsive motions apparently less; seems languid; pulse only 56; eyes look natural.

8th. Pulse 60; appetite, if any thing, greater than usual; symptoms as above: continue the phosphorus to two and an half grains in 24 hours.

9th. Low and languid through the day; no medicine taken of the last increased quantity. He fainted this morning; and walked across the room with difficulty, supported. Towards night-fall was attacked with a violent vomiting, continuing a considerable time; for which his wife gave him sixteen drops of laudanum. This was vomited, but it then ceased, and he slept a little, with much rambling. No stool since yesterday morning. Towards midnight vomiting returned, with considerable dyspnœa, and much apparent debility.

Ordered, early on the morning of the 10th, a mixture of bark, wine and laudanum. At nine A. M. I found his breathing stertorous; no stool; vomiting stopped, but appearing to suffer in his stomach, which, as we understood, pained him. Pulse tremulous, and scarce perceptible at the wrist, but more full and slow above the elbow; feet cold to the ankles; the arms also are cold, owing, in part, probably, to his frequently exposing them from beneath the bed-clothes. Considering him now, as I should have done before, had I comprehended the theory of chorea, as labouring under a depressed state of the system, I tried to bleed him, but could not obtain more than two or three tea-spoonfuls of blood, which appeared to

me to be in a dissolved state. I therefore ordered him an emetic of twenty grains of white vitriol, and four of tartar emetic, dissolved in half a pint of water, to take a table-spoonful every ten minutes, till it should operate, in order to relieve the stomach, if any thing he had taken had affected him. One half was ineffectually taken, when I ordered a double dose of castor-oil, without effect. At noon he continued the same. Pulse imperceptible at the wrist, and no vein visible to try venesection. Ordered senna and manna *ā* ℥ i. rhubarb ℥ ss. Infuse in a pint of boiling water, and give a large tea-cupful every hour, as also a powerful purgative enema every hour. Cataplasms to the feet, and bleed if possible. Six o'clock P. M. Medicines all taken, and six enemas, without effect. Some wind was discharged. Ordered calomel ℈ i. gamboge grs. x. in a dose of castor oil, immediately, and repeat the oil every hour if necessary. Boil up the former ingredients with a pint of water, and add Glauber's salts ʒ j. and use for the glyster, instead of common water, with two table-spoonfuls each of salt and molasses. Apply a blister to the stomach; pulse imperceptible; no pain of the head apparently; pupils natural; convulsions diminished; breathing the same, and very slow; much rambling, with slight intervals of reason. About nine P. M. he died.

Dissection.

October 11th, eleven o'clock.—The body, on inspection, had no symptoms of emaciation, and accordingly, on cutting the teguments, we found the fat on the abdomen not less than one inch thick, and in some parts considerably more. The omentum and mesentery were uncommonly loaded with the adipose matter. Stomach and intestines much distended with flatus. Stomach, internally, slightly inflamed, which I was rather disposed to consider as the effect of the gastric fluid after death, as no disposition to vomit had existed for more than twenty-four hours preceding his death, which would scarcely have been the case had the inflammation existed before that event. Kidnies, spleen, pancreas, and gall-bladder, perfectly sound. The liver was enlarged, and cut as if slightly schirrous; and its external appearance much resembled Castile soap, with small streaks and obscure white. The urinary bladder was healthy, though contracted, owing to his long incontinence of urine, originating, doubtless, in the affection of the brain, hereafter to be noticed.

The thoracic viscera were sound, the lungs adhering par-

tially to the surrounding pleura. The fat in great abundance around the basis of the heart, and no unusual proportion of fluid in the pericardium.

On separating the scalp the vessels bled very much, and much blood oozed from the small vessels passing from the pericranium to the bones of the head. After raising the cranium, the vessels were turgid with blood, the small ones bleeding freely when ruptured from the bone. Several portions of coagulable lymph were found in the longitudinal sinus, and the extremities of the large vessels emptying into it. Great inflammation was apparent, the whole length of the sinus, on its edges, where it touches the hemispheres of the brain, extending itself on the surface of the pia mater, and about the blood-vessels. Firm adhesions existed between the dura and pia mater at this part, by considerable portions of perfectly organic coagulable lymph, most evident about the coroual suture.

On cutting into the substance of the brain, the blood oozed from every extremity of the divided vessels; and, from the number, I concluded that many now conveyed red blood, which, in health, admitted a pellucid lymph alone. On cutting cautiously down, I completely separated it, for some length, from the thin transparent pia mater, which lines the ventricles, and which was here greatly distended by at least twelve ounces of a very transparent fluid.

The various communications between the ventricles were here most beautifully exhibited, especially the foramen ovale uniting the two lateral ventricles, which was here large enough to admit, with ease, the extremity of the little finger. The blood-vessels of the cerebellum were equally turgid. The optic nerves appeared sound. The dissection occupied above two hours.

Observations.

As I did not see this patient for nearly three months from his attack, I can say nothing of his case, except from the report of the person attending, which is fully detailed. I had little suspicion at first of water in the brain, as he complained of very little pain in it at any period after I saw him; neither was it accompanied with strabismus, or dilated pupil. He experienced none of those changes in the pulse peculiar to hydrocephalus, its uniform state being from 70 or 80 to 100, except after the use of the phosphorus, when it fell to 56. At the time I supposed it owing to the medicine, and probably

it was so, by exciting an increased determination of blood to the brain, and thus inducing apoplexy, or acute hydrocephalus. From the time I saw him he was affected with fatuity, and towards the close of the disease he seemed to have indistinct vision. Till within about ten days of his death, he could distinguish the hour of the day in a watch at least six feet distant from him. He saw double occasionally about two days before his death. His appetite was always good, and even voracious, and I never could restrain it till within two days of his exit. He always asserted his head was well, and complained only of great debility. His pulse never beat very hard (or rather it was depressed), and the blood was sizy and cup-shaped. He lost altogether about an hundred ounces of blood, which gave little relief, though drawn in quantities of eighteen and twenty ounces at a time. Blisters to the head, neck, ears, and wrists, and kept running for a considerable time, gave no ease; and though under the influence of mercury for nearly six weeks, during three of which he spat considerably, with sore gums and loose teeth, yet it gave no respite. Nitrous powders every two hours, so as to induce nausea and vomiting, did not affect his complaint, either for better or worse. His bowels were mostly laxative. Digestion went on well, as the immense quantity of fat evinced; and but a small portion of fœcal matter was found in the alimentary canal.

The water must have been accumulated a considerable time, as evinced by the quantity, and the very enlarged state of the foramen ovale. Its sudden effusion must have produced apoplexy; but the slow progress of the effusion permitted the brain to accommodate itself to the pressure, by the action of its absorbents upon the substance of the brain itself, and serves to evince the power of the system to resist a morbid impression, when slowly applied.

The water in the brain was not, I believe, the immediate cause of death. Some sudden effusion or congestion was the source of the fatal issue, by producing apoplexy. The turgid state of the blood-vessels would seem to favour this opinion. Whether the phosphorus induced this I cannot say. He took about four grains in all. I have supposed it was the source of the event which took place, and have never since used it.

Had I viewed the disease in the light I now do, I should have depended on copious evacuations from the bowels and blood-vessels, with blisters; but I confess I was in a great measure in the dark as to the cause of his illness.

The case which I have thus faithfully detailed led me to think more soriously on the subject of the chorea than I had before done, and convinced me it ought not to be viewed in the light of an idiopathic disease. A case, hereafter detailed, which very lately came under my care, has added strength to the opinion I entertain; and a very interesting one, related by Dr. Patterson, in his "Letters concerning the Internal Dropsy of the Brain," has served but to confirm it in my mind.

The Chorea Sancti Viti is, as I hope to prove, merely a symptomatic affection of a disease which, though long known, has not, I think, been thoroughly understood till of late years: I mean Hydrocephalus Internus. That the cholera has never been properly elucidated, is, I think, apparent, from the numerous opinions which have been entertained respecting it. Some have considered it as of the epileptic kind; some of the paralytic; and others of both. It has been viewed as a disease of the muscles, considered as a branch of the nervous system. It has been regarded as similar to the disease produced by the bite of a tarantula, and it has also been ascribed to witchcraft. By all it has been passed over so cursorily that little is to be gained, even of the facts connected with its history. Even Sydenham, who has, perhaps, given us the best description of the disease, scarcely adverts to any thing but its curious gesticulations.

However numerous may be the *remote* causes of a disease, the *proximate* must necessarily be uniform; and of the proximate cause of chorea I cannot trace the slightest suspicion in authors. Dr. Patterson, in his treatise above alluded to, has come so nigh as to place the cause for the effect, as he considers chorea the original disease, and attempts to explain the manner in which convulsive affections produce watery effusions in the brain; a fact he affirms to be sufficiently attested by dissection. I shall hereafter give a short view of the case he details, as far as it may serve to substantiate my opinion, and proceed in my attempt to develope the pathology of the disease, by proving that it arises *solely* as a symptom of the *chronic* state of hydrocephalus internus.

In general, we know hydrocephalus to be a disease rapid in its termination. It certainly, however, exists frequently as a chronic affection, as numerous dissections of Bonetus, Morgagni, and others, testify. When it comes on thus slowly it permits the brain to accommodate itself to the pressure of the fluid in the ventricles, doubtless by a portion of its substance being taken up by the absorbents, without producing its dire-

ful symptoms in their full extent; but inducing various grades of apoplexy, epilepsy, palsy, and occasionally of this curious affection, chorea.

Hydrocephalus generally attacks children; so does chorea; and both occasionally occur in adults. The symptom of strabismus does not invariably take place in hydrocephalus; and though mostly absent, yet it sometimes occurs in chorea. The cause in both must be the same.

Hydrocephalus sometimes follows inflammatory fever, where the head has been much affected; so does chorea; and both sometimes occur from blows on the head.

A too rapid growth of the body in early life may, by the determination to the brain, excite hydrocephalus; and chorea sometimes appears to depend on the same remote cause for its production.

A sudden check to accustomed secretions, such as discharges from the ears, &c. sometimes appears the remote cause of both diseases.

Habit, doubtless, may keep up this curious affection long after the original cause is removed. Hence also frights are said to produce its recurrence, of which De Haen furnishes us with an example, after a lapse of more than two years. We are told, however, by Sydenham, that those once affected with it are apt to have it recur. I should, therefore, rather ascribe it to a renewed affusion, by a sudden determination to a weak part. Chorea is not, in general, noticed till some time has elapsed. It is, however, probable that, could it be attended to from its earliest attack, we should observe many obscure symptoms of water in the brain. Aphonia, idiocy, &c. are not uncommon from hydrocephalus; and they also occur in the higher grades of chorea. The muscles of the face are affected in both diseases, producing spasmus cynicus, risus sardonicus, &c.

Girls are said to be more frequently affected with chorea than boys. Is this really the case, or is it merely accidental? And how is the fact as it respects hydrocephalus?

Some have supposed this disease to depend on worms, and hydrocephalus has been also ascribed to them. The symptoms of worms are so numerous, according to many authors, that, like some other complaints, they are seen lurking in every disease. For my part, I confess I think them a very harmless and highly persecuted part of the creation. We find them uninjurious in many healthy children. Few, perhaps, pass the stages of infancy and childhood without them. If they exist

in great abundance, I can suppose them very prejudicial; and perhaps they are likewise detrimental when disturbed themselves by some febrile commotion in the system, which they may then augment, but certainly did not produce. For how is it possible that such violent symptoms should suddenly arise from the presence of one, two, or even a dozen of these creatures, and yet, during the progress of their growth, nothing of the sort take place? Should not the symptoms exist proportioned to their increase? The remedies which have been effectual in removing some diseases, having produced the evacuation of any worms in the alimentary canal, have been falsely supposed to have cured by their removal. How rarely do we find many of these creatures evacuated by the various anthelmintics employed for their removal; and how often do we find the symptoms ascribed to worms vanish, after the operation of the medicine given, without the evacuation of a single one! I shall not digress further here on the almost universal quackery in families on this subject, though much might be said. I will only add, that I fear many children are carried off by dropsy in the brain, whilst the anxious parents are trying every remedy, public and private, to remove worms, which exist only in their own brains.

If hydrocephalus is the cause of chorea, it may be asked, as the former is not an unfrequent disease, why the latter does not more often occur? I cannot pretend to resolve the question; but may ask why the apoplexy, epilepsy, palsy, &c. are not always produced? We know too little of the nervous system to reason accurately upon it; yet I feel persuaded of the truth of the above principles, although I cannot, perhaps, agree conclusively upon them.

It may be asked, also, why chorea is not, in general, a fatal disease, if it arises from dropsy of the brain? This, I think, can only be explained upon the principles of habit; the slow deposition of the fluid in the ventricles allowing the brain to accommodate itself to the burden. When death occurs in chorea, it seems to me probable that it arises from some sudden increased determination to the vessels of the brain, producing either a kind of acute hydrocephalus, or an engorgement of the vessels themselves; in either case inducing apoplexy. It is to be observed that, although the brain was habituated to a certain degree of distention, yet any *sudden* addition to that must act precisely as if such habit had never been acquired.

Man is not the only animal subject to chorea, as may be

readily supposed. I find, however, no notice taken of its occurrence in any other animal, by those authors I have perused. I have been lately informed by a lady, that she knew a whole litter of pigs suffer under the disease till they were upwards of three months old. And I have now in my possession a dog, of the coach-house breed, whose left fore-leg and side, together with the left side of his face, has been greatly affected with it ever since an attack of the distemper in the last autumn. He was much benefited by two or three active mercurial purgatives, and at the time of my writing this he is almost well.

This leads me to say, that I think the analogy of diseases in man and beasts are not sufficiently attended to. This disease (the distemper) has many symptoms, as well as the staggers or convulsions of horses, in common with hydrocephalus. In my opinion (without the certainty of demonstration by dissection) they are all the same disease. Taplin, who has written so well and scientifically upon the various diseases incident to that noble quadruped the horse, has not thought it beneath his notice to treat of the distemper of dogs, and has, doubtless, rendered the disease less formidable by his judicious treatment. He considers the complaint, however, as affecting particularly the throat, stomach and intestines. I regret, however, his neglect to ascertain this important point by dissection, especially as the disease, before his observations on it, was generally viewed as seated in the head. I have never yet had an opportunity of verifying or rejecting my opinion by dissection since I first entertained it. There are, however, several circumstances mentioned by him in favour of my ideas.

The disease appears at a period of life in some measure analogous to that period in which hydrocephalus most usually occurs in the human subject; but the cause he mentions would be likely to occur at any period, and even to be frequently repeated; whereas the animal seldom suffers from a second attack. I cannot easily explain, upon either opinion, why it more frequently, and with greater violence, attacks the females than the males. The debility, in the latter stage of the complaint, of the hinder parts, amounting nearly to paralysis, and the frequent twitchings and convulsive spasms, appear to me more nearly connected with effusion in the ventricles of the brain than with the violent obstruction of the stomach or some part of the intestines. The obstruction he speaks of, I apprehend, may be viewed more as a remote than a proximate cause; whilst his powerful cathartics, combined with

tartar emetic, &c. appear to favour the absorption of fluid in the ventricles of the brain. The rapidity of the cure will not be considered extraordinary, when we recollect the speedy discussion of distant tumours, sometimes, by the operation of an emetic: and the smallest portion of fluid re-absorbed would be sufficient to diminish the immediate danger. After all, this disease can be understood with certainty only by dissection, which I ardently anticipate: viewing it, however, as distantly related to the subject before us, I thought the digression might be serviceable to a very useful class of animals.

In confirmation of the chronic state of hydrocephalus being the probable cause of chorea, I shall refer to Willis, in his Treatise on Convulsive Diseases, where are detailed several interesting cases of convulsions of the muscles, &c. for several years; dissection after death showing the brain to be filled with water, which had doubtless produced and continued the disease.

The motions in cholera cease during sleep, with, perhaps, few exceptions. In the last case I saw, the eyelids continued partially open, and the eyes rolled considerably.

The will, I doubt not, has some effect on the disease, as the motion is occasionally restrained by fear. Cullen talks of its having been epidemic in some part of Scotland. If so, I think it must have been partly owing to an imitative propensity, as in the epilepsy, related by Kaauw Boerhaave.

I cannot explain why the disease should be sometimes partial, sometimes universal; nor why, according to De Haen, of ten cases he saw, nine should be of the left side. Partial pressure may, perhaps, explain the former: the latter I should presume to be merely accidental.

This disease differs from tetanus (independently of its cause), in as much as the flexors and extensors of the limb, or antagonist muscles, are in a constant and rapid succession, though unequal motion; whilst in tetanus one or other set generally predominates, or else both act with equal force. On this account it is, that it is usually not a painful disease, as no one muscle contracts so long as to cause pain by so permanent a state. And from this rapid *unequal* motion of each antagonist it probably is that such strange contortions are made, preventing a cup, &c. from being brought in a direct line to the mouth.

Hysteria is sometimes combined with chorea, as in the case hereafter mentioned, as is also catalepsy.

Are not the convulsions of acute hydrocephalus analogous to chorea in the chronic?

Sauvages, in his Nosologia Methodica, in speaking of this disease under the name of Scelotyrbe, or Dance de St. Guy, mentions one species of it as intermitting.*

In the cure of this disease De Haen speaks highly of electricity, though more, I think, than it deserves. Rotheram, in his Notes on Cullen's First Lines, mentions a case in which it was serviceable. Much of its utility probably depends on the period of its application.

Camphor has been employed in this disease. A case is given in one of Duncan's Medical Commentaries, in which it was employed for three months. The tonic plan has failed at first, probably from being used too soon, or when depletion was necessary. Though the credit of the cure, in this case, is given to the camphor, I must confess I think it as likely to have been effected by the gradual tone acquired by the system from other sources.

The reason why the remedies in general use (tonics) are, for the most part, successful, is, I imagine, that we are called in at that period when absorption is most readily excited by the general tone they give the system. In the early stages it often requires bleeding and purging, as was Sydenham's method; and which, with little addition, is the best mode of removing hydrocephalus. Sydenham has laid it down as an universal measure to bleed; but this must depend on the state of the system as indicated by the pulse. If it is active, bleeding is certainly proper; after which I should pursue a mercurial course, and follow it up with tonics, as bark, columbo, steel, elixir of vitriol, port wine, and the cold bath.

I shall now give a brief statement of the case related by Dr. Patterson, at page 58 & seq. of his Treatise.—In this case, a girl of nine years of age, a frequent and tormenting head-ach of some years continuance, accompanied with severe stomach sickness, had preceded the Doctor's first visit on the 3d of April, 1790, for chorea, which had been discovered a few weeks preceding, especially of the *left* side. The *head was now free of pain;* pulse slow and small; eyes *regular* and *sound;* bowels costive; and coldness and impaired use of the *left* arm. On the 22d she had a slight head-ach, for the fourth time since her illness. Under the use of tonics

* Vol. i. p. 592.

of various kinds, and electricity, the chorea appeared to mend during the month of May. But on the 13th of June she again complained of the violent head-ach and sick stomach; for which, on the fourth day of its attack, a vomit was administered, with little benefit; some involuntary motion of the *right* hand, and vision less distinct, &c. On the 18th her head was so bad that she took a second emetic, with some relief; but she was as bad the following morning, continuing to the 22d. Her eyes were proper. The *convulsions had gone*, and she had *regained the perfect use of her hands.* A blister relieved the head-ach; but a paralytic stroke followed in the course of the day; the mouth being distorted, and the *right* arm having lost its use. On the 25th—*strabismus* towards the left side; *dilated* pupils; insensible to light; *convulsively* affected in the *left* side; *torpid* in the *right.* On the 26th the left arm was more convulsed, the right remaining torpid; at midnight general convulsions recurring, of various degrees. At two o'clock she died.

On being examined, the blood-vessels of the dura mater were turgid and reddish, exhibiting appearances of strong preceding inflammation. A kind of serous diffusion existed over the circumvolutions of the lobes; the left lateral portion of the plexus choroides was inflamed; and two ounces of water were found in the left ventricle, and half that quantity in the right.

In this interesting case, which is fully detailed by Dr. Patterson, I feel no doubt of the long-continued and violent head-achs being owing to the fluid in the ventricles of the brain. The alternation of the head-achs with chorea show strongly the connection of the two diseases; whilst the paralysis of the *right* arm, and the convulsions of the *left*, show the connection of chorea and palsy. The operation of the emetics probably hastened her dissolution, by determining too forcibly the circulation to the brain, and hence exciting an acute state of hydrocephalus.

It appears to me that Dr. Patterson has greatly erred in supposing chorea the primary disease; of which each must judge for himself.—I shall now beg leave to relate a case of chorea which has lately come under my care, and then dismiss the subject.

December 15th, 1803.—Rosetta, aged nine years, a mulatto child, hitherto perfectly healthy, but very mischievous, for which she had repeatedly suffered from blows, &c. When an infant, she lost, by an accident, all the toes of the right

foot except the great toe. About six weeks ago she began to be affected with those convulsive motions of the right arm and foot, which have since so much increased. They were at first thought to be owing to mischief, as she let every thing fall she took in her right hand, which was, till within a few days past, the part principally affected. Her face and tongue at length partook of the complaint, and she now talks but little; though at times she screams out greatly, yet without complaining of any pain. Her tongue is white, and pulse active, though not very quick. The eyes are not affected, and she sleeps sound, without any of those convulsions which affect her during the day. I ordered her ten grains of calomel at bed time, and a scruple of rhubarb in the morning—to lose eight ounces of blood, and to be put on low diet. The medicine operated well, and blood was natural. Her left side became now greatly affected. Pulse is moderate. I therefore prescribed, on the 17th, fifteen grains of bark, and ten of rust of iron, three times a day, with a grain of opium night and morning. The symptoms still increasing, I omitted the bark and steel, and on the 21st put her on a mercurial course, by friction with antimonial powders (composed of two grains of nitre, two of calomel, and one fourth of a grain of tartar emetic) every two hours. She complains of pain on the left side of her head since yesterday, for which I blistered her behind the ears. I learnt to-day that she had been frequently employed by a gentleman, whom I had had under my care in the same house, to rub in mercurial ointment upon his legs, which she did with her bare hands, and continually was dabbling in cold water. Quere, its effects upon her? She has hitherto been under little controul; yet I found I could readily intimidate her, which now became absolutely necessary, as whenever she was in the least displeased, she screamed and roared so as to alarm the neighbourhood. On the 26th her mouth became very sore, from the medicine, which was consequently suspended: but as she had frequent hysteric paroxysms of laughing and crying, I used assafœtida in small doses. The great source of uneasiness to her, and which evidently made her worse, is an impression, which she and the neighbours give way to, that she is bewitched by an old woman who lives near her, and is very ill, and whom she thinks she sees every night. By threatening to apply a blister if she continued to see the old woman, under the plea of its being a strong proof of her disease being worse, I in some measure destroyed her foolish apprehension; but the death of

the old woman, about the beginning of the year, did more for me than all my threats; for she never saw her afterwards. Little was done for her at this time, except giving gentle doses of physic, as her teeth were very loose, and the spitting continued. On the 2d of January, 1804, I began the use of tonics: columbo-root and steel ā ʒ ij. made into twelve doses; one three times a day; and on the 7th increased the steel to ʒ iij. all with evident good effect. I have omitted to mention the motion of her eyes during sleep, although the convulsions of her head, &c. were totally suspended. She was now able to walk much more steadily, and mended daily. On the 11th, in addition to the powders, I ordered the shower-bath, with the happiest results. At this time I was struck, in her walking, with a kind of cataleptic affection—a sudden and involuntary stopping for nearly half a minute at a time, when she would again resume her walk. By the 23d she was nearly well; scarce a vestige of the disease remained; and her fatuity and idiotic appearance seemed quite gone; a few slight twitches of her fingers alone remaining, as if from habit merely. The cold bath for about a week longer completed her recovery.

Philadelphia, March 20, 1804.

ARTICLE II.

An Account *of a* Case *of* Hydrophobia *successfully treated by copious* Bleeding *and* Mercury: *In two Letters from Dr.* Robert Burton, *of Bent, in the State of Virginia, to Dr.* Benjamin Rush, *of Philadelphia.*

Bent-Creek (Virginia) August 21, 1803.

Sir,

BELIEVING that you are always disposed to encourage any thing which may throw light upon the treatment of diseases, I take the liberty of addressing to you the following case of hydrophobia, requesting a line or two, if you think it deserving your attention.

On the 4th of July, 1803, at nine o'clock in the evening, I was desired to visit Thomas Brothers, aged twenty-eight years. I was informed by the person who came for me, that he had been bitten by a dog, which his friends suspected to be mad. I found him in the hands of four young men, who

were endeavouring to confine him, and thereby prevent him from injuring himself or friends. He recognized me, and requested me to give him my hand, which he made a violent effort to draw within his mouth. Conscious of his inclination to bite, he advised his friends to keep at a distance, mentioning that a mad dog had bitten him.

His symptoms were as follow, viz. a dull pain in his head, watery eyes, dull aspect, stricture and heaviness at the breast, and a high fever.

Believing, as you do, that there is but one fever, I determined to treat this case as an inflammatory fever. I therefore drew ℥ xx. blood; and, as he refused to take any thing aqueous, I had him drenched with a large dose of calomel and jalap.

July 5th, four A. M. Finding the symptoms worse, I took away ℥ xvj. blood, and applied two large epispastic plasters to his legs, hoping thereby to relieve the oppression of the præcordia and other symptoms.

Twelve M. Was informed that one of his friends had permitted him to take a stick in his mouth; which he bit so as to loosen several of his teeth. As he craved something to bite, I desired his friend to give him a piece of lead, which he bit until he almost exhausted his strength.

One P. M. Finding but little alteration, I drew ℥ xviij. blood, and had him drenched with the antimonial powders.

Two P. M. He slept until half after three, when he awoke, with the disposition to bite, oppression, &c. but not so violent.

July 6th, eight A. M. Found him biting the bed-clothes; his countenance maniacal, his pulse synocha, with a stricture of the breast, difficult deglutition, laborious breathing, and a discharge of saliva. I took away ℥ xxiv. blood, gave him a dose of calomel and jalap, and continued the powders.

Twelve M. Drew ℥ xvi. blood, and gave him laudanum.

Five P. M. Found him in a slumber; his skin moist, and his fever and other symptoms much abated.

July 7th, eight A. M. Was informed that he had only two paroxysms during my absence, and that he had lost ℥ xvi. blood, agreeably to directions. Notwithstanding the favourable aspect which the disease wore, I resolved to bleed him twice more, and then to induce an artificial fever by mercury, which would predominate over the hydrophobic. I therefore drew ℥ x. blood, and requested his friend to take ℥ xviij. at night; to rub in a small quantity of mercurial ointment; and to give a mercurial pill every four hours.

July 8th, nine A. M. Found him convalescent, but continued the mercurial unction and pills.

July 9th, ten A. M. Found his gums sore, and discontinued the mercury.

July 15th, one P. M. Found him well, but with a considerable degree of debility.

It would be doing injustice to you not to mention that I was indebted to your lectures for the successful treatment of this disease.

Philadelphia, August 29, 1803.

DEAR SIR,

Accept of my congratulations upon your rare triumph over a case of hydrophobia. I give you great credit for the boldness of your practice. You have deserved well of the profession of medicine.

In order to render your communication more satisfactory, permit me to request your answer to the following questions.

1. On what part of the body of your patient was the wound inflicted? and how long was the interval between the time of his being bitten and the attack of his fever?

2. Did he discover any aversion from the sight of water; and did he refuse to swallow liquids of all kinds?

3. What were the appearances of the blood drawn? Did it differ in the different stages of the disease?

Your answer to the above questions will much oblige your sincere friend,

BENJAMIN RUSH.

Dr. BURTON.

Bent-Creek (Virginia), Sept. 18, 1803.

SIR,

I regret that business of an indispensable nature prevented me from being more particular in my communication. I drew it up in a hurry, intending to transcribe it, and insert such other notes as would throw light on the case; but being called out a few hours before the post set out from this place, I was obliged to forward the communication in the manner in which you received it.

The part of the body of my patient on which the wound was inflicted was a little above the union of the solæus and gastrocnemius muscles, which form the tendo-achillis. The

interval between the time of his being bitten and the attack of the fever was twenty-four days.

He was, I was told, dull and solitary a few days previous to the attack. A few minutes before it his friends found him two hundred yards from the house, apparently in a deep study. He has informed me, since his recovery, that he had a slight pain in the wound, attended with itching, and an uneasiness in the inguinal gland, several days before the fever.

He refused to swallow liquids; and the sight of water threw him into a convulsive agitation.

With regard to the appearances of the blood drawn, I am sorry to inform you that after it became cold I did not examine it.

I am, Sir, yours,

ROBERT BURTON.

Dr. BENJAMIN RUSH.

ARTICLE III.

An ACCOUNT *of the* YELLOW FEVER *at* ALEXANDRIA *(Virginia), in* 1803: *In a Letter from Dr.* B. H. HALL, *of that Place, to Dr.* MITCHILL.

I HAVE thought proper to invite your attention to the following history of the weather and diseases which occurred immediately anterior to the late fever, together with that of the disease itself.

So early as the last of May the cholera infantum made its appearance, and as the season advanced became alarmingly mortal. It called for, and was cured by remedies which stamped its character with more malignancy than I ever recollect to have seen accompany it. The weather, during its height, was uncommonly dry, and the heat more concentrated than was usual at this season of the year.

In the month of July a dysenteric disposition appeared to pervade the systems of most people. This state of fever called more loudly for the lancet than common; indeed, I scarcely met with a case which yielded under three weeks, when bleeding was not used. If I recollect right there was no rain this month, and the heat intense.

From motives truly laudable, inasmuch as the beauty of this place was considered, our attention was too much given to paving new streets, whilst those already paved were neglected.

I did not hesitate, some weeks before the fever broke out, to express to some of my friends the fears I entertained of the approach of a malignant epidemic; for I had met with no case of fever in which the pulse was not depressed, the tongue not black or parched, and in which the eye did not exhibit marks of malignancy. The idea was, however, inadmissible; for Alexandria, it was said, bid defiance to pestilence. She was, notwithstanding, destined soon to yield in obedience to circumstances.

On the 5th of August there was a kiln burnt in a central part of the city, on which was thrown a pile of oyster-shells, containing, as was said, some putrid fish. For some days the exhalations arising from it proved offensive to the neighbourhood, some individuals of which sickened and died. About the same time, however, there were cases of malignancy in parts of the town remote from the kiln, and some deaths which could not be traced to it.

In a short time the public mind became seriously alarmed; a council was called; the deliberations of which, when made public, though intended to prevent unnecessary alarm, served but to encourage the fears of our citizens, who now determined upon flight.

Humanity herself, though she delights to bend over the sickly couch, seemed now appalled. It was now, however, her services were called for. The liberal donations which came in from all quarters furnished materials to indulge the genuine benevolence of her temper, and to display the charitable effusions of her soul. She was, indeed, personified in the characters of Mr. Andrew Jamieson and others, who constituted a committee of health. These worthy citizens, by their unceasing efforts to discover objects of charity, rescued many from the grave who were on its brink, and restored them to their friends and the world. Alas! however, many sunk to rise no more. The traveller, as he passed in distant review of our city, must have been shocked at the heaps of monumental clay which potter's-field presented; and many of us will long, long lament characters whose virtues were indeed rare, and whose usefulness will long be held in recollection.

Let me turn aside from this picture of desolation, and contemplate the numerous blessings of the science we possess,

and which places those who practise it conscientiously upon a level with the proudest prince that lives.

I shall now proceed, in course, to a history of the symptoms and method of cure.

In general the patient was taken with a pain in the head, a sensation of lassitude and weight about the præcordia, loss of appetite, and sometimes nausea. This last symptom generally accompanied the worst cases.

Sometimes a burning heat in the stomach preceded every other symptom. The miasmata appeared to act universally upon the bowels; for in a majority of cases which came under my notice, the bowels were constipated many days before the patient laid by. As the disease advanced the black tongue universally characterized it. A sensation of coldness was a general symptom.

It is remarkable that, when delirium came on early in the disease, the patient recovered, and *vice versa*. Whether this was owing to a difference of treatment I do not know; but I remarked when the lancet was not spared this symptom occurred early. How far the arterial system, by being suddenly relieved from depression, may have produced this phenomenon, or the neglect of it, by bringing on an engorgement of the vessels of the brain, thereby producing delirium in the last stage, I do not pretend to decide. I should fill a volume were I to give you all the symptoms which were put on by this fatal disease. They may be met with in all the authors upon the subject of malignant epidemics. I shall, therefore, proceed to my method of cure.

The first indication was to evacuate the bowels. This I did with calomel and jalap. If this failed, I followed it up with senna, crem. tart. and manna, which never failed to insure plentiful and repeated operations. In many cases, however, I opened a vein the moment I was called, particularly if the system was much depressed, and if I found the patient prostrate it was an invariable rule; for I never neglected it but in one case, which I am afraid I lost from that circumstance. The pulse governed me to be sure, but I was regulated by, and fixed as criteria, to bleed not the full and quick pulse, but the apparently low or natural pulse. It was this insidious pulse which arrested the arm of the physician, and which, while it seemed to call for wine and bark, actually forbid the exhibition of them. If the second day was allowed to pass without opening a vein, the patient was generally pulseless at the close of the third. If the eye continued red on the

second day, drought great, and there was much determination of blood to the brain, I invariably bled, but was careful not to draw much, for here large bleedings seemed to aid the operations of the disease, and hurried the patient to the grave.

I now gave calomel and antimony throughout the day, with a view to open the bowels as well as to salivate and sweat. This last object was seldom or never obtained. The business of the physician was, if he failed in this desirable end, to direct the force of his remedies to the creation of an artificial disease. None appearing so unexceptionable as a salivation, I gave calomel in very large quantities, and exhibited mercury by friction. If I succeeded in making my patient's mouth sore, it was a guarantee to his recovery.

I am indebted to Dr. Dick for a valuable prescription, which I used with obvious relief in the burning heat of the stomach, viz. the lime-water. This sensation was evidently induced by the presence of acid in the stomach, and preceded that morbid state of the bile which, in my judgment, constitutes the "black vomit." It was necessary that from one to three motions should be had every day. These I obtained both by cathartics and injections. This last form of medicine I preferred, for the stomach was generally so irritable that calomel itself was rejected.

After the pulse had gradually recovered itself, the type of the disease appeared to undergo a change, sometimes putting on an intermitting fever, at others that of a common bilious remittent: I then modified my treatment accordingly. Blisters, in this last-named state, I used with success. They appeared to supercede the necessity of the bark.

Thus have I given you as full an account of the late fever as the limits of a letter will allow. Indeed, to avoid prolixity, I have declined entering into an examination of the opinions which are entertained by our citizens upon the subject of its origin. If any, however, there are few who advocate the idea of its importation.

If you conceive the public will be in the least gratified by perusing the above account, you have my permission to give it publicity.

ARTICLE IV.

DESCRIPTION *of a* DISEASE *incident to the* LYMPHATICS, *and a new Species of Anatomical Injection: Communicated to the Editors by Mr.* RAMSAY, *Anatomist, while resident at New-York, in a Paper dated March* 24, 1804.

PERMIT me, through the medium of your useful work, to offer to the consideration of your learned readers a case, I believe hitherto unnoticed, to which the lymphatic veins are liable. This discovery I made while a pupil of the justly celebrated Cruikshank, of London. The year I forget, as my notes on this subject are in Europe.

Every anatomist must have observed, that lungs which have been subjected to violent and protracted morbid action have often their lymphatic veins conspicuously dilated and opake. In forming a preparation of that organ in this state, I was struck with the obstructions the quicksilver met with, more especially where the vessels, by their thickened coats, distension, and perfect whiteness, promised a happy injection. Upon minute attention to the cause, I was convinced that the sides of the vessels had grown together. For many years, especially after I became a teacher of anatomy at Edinburgh, where a large field of practical anatomy offered me opportunities of observation, this part of pathology became an object of my particular attention, and I seem to have detected, not only the incipient, but progressive and highly diseased stages of the lymphatics in all parts of the system.

It is natural that the human mind, in such striking phenomena, which offer an ample scope to the most interesting consequences, should endeavour to scan the cause, and, if possible, prescribe the cure, or alleviate the evil. I shall only take the liberty, however, of here suggesting what has occurred to me, so far as the disease assumes different stages, and why the lymphatic veins may, by their peculiar offices, be liable to this peculiar affection.

The sanguiferous veins are liable to a thickening of the coats, so as frequently to assume the open mouth of an artery; and this often seems to occur in subjects where the arterial system is languid. I have supposed, in such cases, the appropriate arteries, which nourish the veins, are excited to an increased action by the stimulus occasioned by congestion in the veins. In such veins I have distinctly demonstrated the

muscular coat. There can be no accretion, however, of the cavity of the sanguiferous veins, as they continually receive their contents, by continuity of canal, from their corresponding arteries. But there is a marked difference between the sanguiferous and lymphatic veins. The latter receiving their contents from the surfaces of the system, the propagation taking place by some means we seem not fully to comprehend, though it is possible, as the blood seems the appropriate stimulus of the arteries, the lymph becomes the appropriate stimulus of the lymphatic veins. That these vessels have muscles I believe, which are roused into action by their contents; and every day proves to us that they and their glands possess the highest irritable principle, from the indurations of glands and dilatation of the veins, where the lymph is tainted with any noxious quality.

If I am correct in the existence of this disease, it may explain many morbid phenomena. Justly celebrated authors have supposed a peculiar principle of life in the blood. If my memory serves me, some one draws inductions from the coagulum found in an aneurismal sac, which had been included by the ligatures of operation; and this coagulum was supposed to be found unchanged after years had elapsed. May not lateral branches of arteries and veins of such a sac have been conveying new blood continually, the lymphatics carrying off the superabundance, and the coagulum found be really more recent than is supposed, but coagulating constantly from the inaction of the sac? The vital principle of the blood appears to me not only plausible, but true; and I see not why the idea may not be extended to the lymph. In such lungs, however, as I injected, the lymph seemed in some peculiar morbid state; and when it is propagated towards a portion in a state of accretion, as this fluid is prevented from returning retrograde by the valves, if lateral branches are not sufficiently capacious to carry off the fluid, there must be a real stagnation; and several eminent practitioners have remarked to me, since mentioning the circumstance in my lectures at Edinburgh, that they had traced diseases, ulcers, &c. from seemingly this cause.

I have been used to offer as a practical hint on the two venous systems, which are indirectly affected and dependent on the state of their corresponding lymphatic and sanguiferous arteries,* that we should aim at producing tone in the arterial

* I divide the veins into sanguiferous and lymphatic, and the extreme rami of the arteries into effusori, or *open-mouthed arteries*, which include

system, by the stimulus of air, exercise, warm or cold bath, friction, &c. in preference to applications of violent medicines by the stomach, or mercurial frictions; by which means I have often succeeded in exhibiting medicines when the system had acquired general vigour. As congestion in the sanguiferous and lymphatic veins destroy these valvular apparatus, their contents are not only not supported (which occasions effusions), but the fluids are not propagated so as to return and nourish the system. Exercise, then, or friction (avoiding the least approximation towards fatigue) in the course of circulation, where natural action is wanting, empties the veins, often banishes pain and anxiety, exhilarates the system, by propelling the contents, exciting action and nutrition, and checks dilatation of the vessels.

I shall now add an anatomical injection I have lately contrived, which I have not yet brought to that perfection I wish; but it is my duty, as a citizen of the world, to sacrifice my pride to the general benefit, relying on the indulgence of a generous community, whose extensive means may ripen our feeble attempts into real advantages. The very fine injections for anatomical purposes, composed of cinnabar and varnish, do not really always give a true idea, as they produce effusion, which may please the vulgar eye, without illustrating science. The wax injections, in some respects, are inconvenient, from the heat they require, as well as the warmth to which the subject is usually exposed, which often destroys the natural structure and appearances. The following injection seems to run minutely, and keep fluid a sufficient time to enable us to inject leisurely (very important in some cases which wax injections forbid);—it requires no heat, neither does the subject; and although thrown fluid and cold into the vessels, it hardens in thirty minutes or less. It is rather brittle. Chemistry may some day obviate this. It is not, however, so subject to expansion as the wax; hence it may be exposed to the greatest heats, in warm climates, without endangering extravasation or rupture. I have only tried this injection with the calces of lead, as the colouring ingredients; but I presume any calx or pigment may be found equally effectual. The calx is reduced to a very fine state, and mixed with linseed oil, the same as found in the shops for painting. This, however, seems most

every species of nourishing, lubricating, or excreting arteries, and *sanguiferous* arteries, which, by continuity of canal, convey the blood to the veins.

successful when the paint is of a very thick consistence, admitting the more readily of the other ingredients to be mentioned. Mix the paint with a varnish composed of equal weights of spirit of turpentine and rozin, till it acquires the consistence of cream; saturate the fluid with water, of which it takes up a considerable quantity; throw it into the vessels, and it will harden in about half an hour if the proportions are just. I suppose, as the hardening depends on the water, moistening the calx with water, previous to grinding it with the oil, will be a more simple process, and equally effectual as the above.

I would surely have complied with the requests of my very much respected friends at New-York, in publishing the notes of my dissections of yellow fever patients, and treatment of this disease in the autumn of 1803; but I have been unwell since my attention on that calamitous occasion, which prevents my arranging this subject; and I deem it the less necessary, as I leave the memorandum with the ingenious and indefatigable Drs. Douglass and Forster, who were pleased to assist me with their polite attention and skill in both departments, and to whom I likewise demonstrated, in these unhappy victims, the various stages of the disease of the lymphatics described above.

ARTICLE V.

CRITICAL REMARKS *on some Parts of* DARWIN'S THEORY *of* FEVER: *In a Letter from* NOAH WEBSTER, *Esq. dated New-Haven, Jan.* 30, 1804, *to Dr.* MILLER.

WHEN I wrote to you last September on the subject of influenza and fever, I had not read the treatise of the celebrated Darwin on the Laws of Organic Life. Notwithstanding the admiration I feel for that illustrious author, and the high respect for his opinions, which his great powers of mind and his profound researches have inspired in my mind, I shall take the liberty to suggest some doubts concerning particular parts of his theory.

That the contraction of the muscular fibres is the cause of motion in a living animal, according to the ingenious theory of Dr. Darwin, is extremely probable, and readily admitted. His theory, in this respect, is so rational, and so well supported by known facts, that it may safely be made the basis of a sys-

tem. But in the investigation of causes, man is doomed, by the imperfection of his intellectual powers, to stop at some point short of the primary cause. He sees one link of the chain depending on another, that on a third, and a third on a fourth; but at length arrives at a phenomenon or effect, for which he can find no cause, or none which he has the power to comprehend. Thus Dr. Darwin, by nicely observing the phenomena of animal motions, might trace them to fibrous contractions, and fibrous contractions to the irritations of external objects, to pleasure, pain, volition, or association; but, at last, he is compelled to inquire *why* and *how* the fibres become obedient to the impulse of stimulus; and, mounting a step higher in the catenation of causes, to create or imagine a certain something to reside in the medullary substance of the brain, to which he gives the denomination of *the spirit of animation.* What this principle is, he makes no attempt to explain; and the very existence of it is rather assumed than proved. As a mere abstract question, this would be of little importance; but in a system of medical science, intended for practical use, and necessarily involving in its practical details the welfare of mankind, it becomes a matter of infinite consequence. In the very outset, therefore, it would seem expedient that the author should have been more explicit in defining his ideas of this *spirit of life* or *sensorial power.* It seems, indeed, essential to the perfection of his theory, that he should have determined whether this primary source of the animal functions is an active agent, or a passive capacity or faculty of the brain, producing effects only in consequence of the impressions or influence of causes external to itself. In some passages the author's language would induce the reader to believe, that he considered this sensorial power as possessing a stimulating power *per se;* yet, in general, he describes it as a mere passive power, acting only in consequence of stimulus; making it synonymous with sensorium. In two or three passages the author suggests that "oxygen affords the material for the production of the sensorial power, which is supposed to be secreted in the brain, or medullary part of the nerves, and that the perpetual demand of this fluid in respiration is occasioned by the sensorial power, which is supposed to be produced from it, being too subtle to be long confined in any part of the system." Again: "The necessity of perpetual respiration shows, that the oxygen of the atmosphere supplies the *source* of the spirit of animation, which is constantly expended, and is probably too fine to be long contained in the

nerves after its production in the brain." *Incitantia* and *Secernentia*, p. 28 and 40.

In these passages the author's words are to be noticed. "Oxygen affords the *material* for the production of the sensorial power; oxygen supplies the *source* of the spirit of animation, which is a subtle substance, easily escaping from the brain." These expressions seem clearly to indicate that the author considered the *spirit of animation* as an active substance, or ethereal fluid, in the brain, separate and independent of the medullary substance of that organ. And, if so, how does this theory differ from the old hypothesis of a nervous fluid in the brain and nerves, by which motion is communicated to all parts of the body? It is further observable, that the author seems to suggest that oxygen is not this fluid itself, but *affords* it or *supplies* it; by which expressions we are led to conclude that he considered oxygen as a compound, which the brain decomposes. On these points, the author, I conceive, has not been sufficiently explicit; for, in forming a systematic theory, nothing is of more consequence than to have for its basis some clear, intelligible, undisputed principles.

From the simplicity observable in all the works of nature which fall under the cognizance of our senses, and from many phenomena of animal life, it seems more probable that the sensorial power is a passive faculty of the brain, acting only in obedience to stimulus; and that the primary stimulus, on which animation depends, is the matter of heat. If the spirit of animation is an active agent, extraneous from the structure of the brain, but resident in it, does it not follow that any interruption of its existence must be death? How is it possible, upon this hypothesis, to account for the resuscitation of suspended life in drowned persons, and animals which are torpid during winter? Upon the other hypothesis, that the sensorial power is a passive quality, dependent on the structure of the brain, and, therefore, acting in obedience to stimulus, or remaining torpid from defect of it, the phenomena of resuscitation are easily explained. Torpid animals are revived solely by the access of heat, or the matter of heat; and is it not, therefore, unphilosophical to seek for an additional cause of re-animation? In cases of suffocation, the revival of the person seems to depend exclusively on the same principle, the injection of oxygen into the lungs; for the friction and application of warm substances are only substitutes and auxiliaries to aid in the generation and transmission of heat to all parts

of the body; thus aiding the vessels to renew the circulation, which is the natural conveyance of the animating fluid.

There is another point maintained by Dr. Darwin, of more practical consequence, about which I am by no means satisfied. He states, in several passages of his Zoonomia, that "an increase of heat is the consequence of an increase of the secretions; that the secretion of perspirable matter is, perhaps, greater during the hot fit of fever than in the sweating fit which follows; that whatever increases insensible perspiration, *increases* the heat of the skin; that the heat in fevers arises from the increase of some secretion, either of the natural fluids, as in irritative fevers; or of new vessels, as in inflammatory fevers; or of new fluids, as in infectious fevers.—See vol. i. p. 209, 220, 262, 297, 303. vol. ii. p. 13, Boston edit. 1803.

In confirmation of these opinions, the author cites the experiments of Dr. Alexander, which prove that the sweats in fever do not occur till the skin is cooled from 112 to 108 degrees, that is, till the paroxysm begins to decline. (Vol. ii. p. 14). He alleges that, during the hot fit, no aqueous matter is visible on the skin, because it is evaporated as fast as it is excreted; and supposes that the cutaneous absorbents lose their power of absorption by reason of the exhaustion of the sensorial power some time sooner than the secerning vessels, which continue to pour out their proper fluids after absorption has ceased. Vol. ii. p. 14, & passim.

With respect to the great effect of absorption, I have my doubts; but whatever this effect may be, I cannot assent to the Doctor's doctrines, nor to the conclusions he has drawn from certain facts. In particular, I must question the inference he draws from the experiments of Dr. Alexander, that as no sweats in fever occur till the heat is diminished, the sweats are not critical to the fever, but are the natural consequence of the decline of the hot fit, commencing with the decreased action of the absorbent system, and the decreased evaporation from the skin. (P. 14.) From the fact, that no sweat occurs till the skin is cooled from 112 to 108 degrees, I draw a conclusion directly contrary to that of Dr. Darwin.

From chemical principles, it is well known that heat or caloric will hold a certain portion of water in solution, and that, upon coming in contact with a much colder substance, the caloric escapes; that is, quits the water by means of its attraction or affinity with the colder object; and the water is precipitated: or, if the terms here employed are not chemically correct, let the escape of the caloric be ascribed to its

tendency to diffuse itself, and restore an equilibrium of heat. Thus, when a tumbler of cold water from a well or spring is exposed to the dry atmosphere of a hot summer's day, the sides of it are speedily covered with globules of water. The contiguous invisible aqueous fluid, held in solution by caloric, is robbed of its sustaining principle, which rushes into the glass of water, and precipitates the warmer fluid with which it was before combined.

In the same manner, I apprehend, the superabundant heat of a febrile patient escapes as soon as the natural secretions are renewed, and the aqueous matter is deposited on the skin by precipitation. And this visible fluid on the skin is an evidence of the escape of heat, and must be instantly succeeded by a cooler skin, and a fall of the thermometer when applied to the body. The diminution of the action of the cutaneous capillaries does *not precede* the exertions by which the heat is discharged, as Dr. Darwin supposes; but the discharge of secreted matter, and the escape of heat, are synchronous; they are the *cause* of the decrease of the action of the cutaneous vessels, and chemically necessary to lessen the heat of the skin. The fall of the thermometer from 112 to 108 degrees is the least effect which we can suppose would follow from the escape of a quantity of caloric sufficient to hold in an aeriform state an aqueous fluid that, when precipitated, should become visible to the naked eye. The reason of a dry skin in the hot fit of fever I should suppose to be this:—The loss of sensorial power, or morbid action of the sub-cutaneous vessels, induces the cold fit, in which it is agreed there is a suspension of the action of the secerning capillaries. This is followed by an increased action of the heart and arteries by reverse sympathy, or increase of sensorial power, which increased action is communicated to the extreme vessels. But this is, at first, a morbid, irregular, and preternatural action, in which the secretions are imperfect. In the mean time, it is obvious there must be an actual accumulation of the matter of heat, which I call *fever*. This active principle is accumulated faster than the secreted fluids can be discharged, and hence is retained, and becomes perceptible to the touch upon the skin; a small portion of it escaping, with a small portion of aqueous matter, during the hot fit; that is, evaporating, but not in sufficient quantity to reduce the fever, or not faster than it is evolved from the blood. At length, either by remedies applied, or by a natural restoration of regular action to the secerning vessels, the secretions become abundant, and discharge the accumulated

heat and perspirable matter. The fever is thus said to remit or intermit.

Dr. Darwin takes it for granted, that an increased action of the cutaneous capillaries must produce an increase of secretions. This is, at least, questionable. We see, in other cases in which effects are visible or demonstrable, that excess, as well as defect of action, destroys the power of organized bodies to produce their effects. Too much stimulus kills or impairs as certainly as too little. Every instance of sphacelus is an evidence of this truth. Reasoning from analogy, I should suppose that excessive excitement must lessen the secretions, and, by a still farther increase of action, mortification must be induced. Dr. Darwin ascribes mortification to a total loss of sensorial power. True; but is there not a total loss of sensorial power in death? Yet inflammation in a living body will mortify the part in a tenth part of the time that a corpse will putrefy. There must, therefore, be something else to produce this effect besides a loss of sensorial power. What is this? Unquestionably preternatural excitement from preternatural heat; and I am not so willing to strip organized matter of every mechanical and chemical operation, as to say, that heat, by its repulsive force, or by creating new chemical affinities in an inflamed limb, may not aid in separating the particles of organic bodies.

Further, Dr. Darwin supposes that, during the exacerbescence of fever, the perspirable matter is increased in quantity, but all evaporated or absorbed; whereas, upon the decline of the paroxysm, the absorption and evaporation are diminished. With regard to the fact of a diminished absorption, I entertain doubts, because the author has given not a particle of proof of the fact; nor can I find any evidence of it in the phenomena of fever. He seems to have assumed the fact to aid in supporting his theory.

But whatever may be the fact in regard to absorption by the skin, or the decrease of evaporation, the laws of precipitation require that *less* fluid matter should be deposited on the skin, in consequence of a reduction of heat, instead of a greater quantity. For it is a known fact, that the greater the difference of temperature between the evaporating fluid and the condenser, the more copious will be the deposition of the fluid; as, for instance, in the refrigeratory of a still. The reason is very obvious—the colder the condenser, the more rapid will be the escape of the matter of heat from the vapour. By the same law, the precipitation of perspirable mat-

ter ought to be the most copious when the heat of the body, and, of course, the heat of the fluid, is the greatest, especially upon Dr. Darwin's theory, that the secretions are then most abundant. The fever-heat of a body is much above the temperature of the atmosphere. Rarely, indeed, is the heat of the apartments of the sick higher than from 60 to 80 degrees—often less; while the febrile heat is 112. Now, in cases of this sort, as in most others of perspiration, the skin is not the refrigeratory, if I may so express myself, but the air. The heat, combined with a portion of aqueous fluid, being propelled through the glands to the surface of the skin, instantly quits the warm fluid, and rushes into the colder air, which acts as a refrigeratory; and the warmer the skin and the fluid, the more rapid is the escape of the caloric. The aqueous matter is left upon the skin.

Hence I must still believe that copious discharges of heat and perspirable matter in fever are *not the consequence* of a previous reduction of heat and diminished action of the secreting vessels, but the *cause;* and, of course, that such discharges are critical to the fever.

That the secretions are the means of discharging the heat in a healthy body, is beyond a question. What else is it which renders the body of a child, in extreme summer heat, much cooler than the surrounding air. Thus, also, in all cases of increased muscular action in adults, as by running or labour, the contraction of the muscles compresses or stimulates the arteries; respiration and pulsation are quickened; more oxygen is imbibed, as the inspirations are more frequent. What resource has nature furnished, in such cases, to prevent a fever, but the secretions? The action of the whole system being increased, the vessels furnish more copious quantities of fluid matter, and especially the glands. All parts of the body being stimulated equally, the actions of the vessels are regular and healthy, though accelerated; a copious evacuation of aqueous matter conveys off the superabundant heat; and all the consequence that ensues is an unusual exhaustion of sensorial power and of the fluids, occasioning debility and thirst.

That my ideas of the use of the secretions in preventing and curing fever are not new, is admitted; and since the date of my former letters, I have found a passage in the writings of the celebrated Dr. Black, which is express to my purpose. That distinguished chemist expressly declares it as his opinion, that the morbid state of the vessels of the lungs and pores, preventing them from bringing forward the lymph in sufficient

quantity to carry off the heat by evaporation, is the immediate cause of fever. Vol. i. p. 214.

In opposition to Dr. Darwin's opinion that the greater the action of the capillaries in fever, the greater must be the discharges of perspirable matter and the greater the evaporation, one further idea ought to be suggested. In all healthy bodies, every increase of action in the muscles and secreting vessels is followed by increased secretions and an augmentation of heat; but the perspirable matter is *not* evaporated with such rapidity as to be imperceptible. On the other hand, the more rapid the movements of the heart and arteries, the more visible fluid is deposited on the skin; as, for instance, in running or hard labour. And this increase of secretions is visible on the skin until the body is exhausted. This is evident proof that the dry skin, in the hot fit of fever, cannot be owing to a more rapid evaporation or absorption, in consequence of the increased action of the vessels, and proof, approaching to demonstration, that the dry skin is owing to *deficient secretions*.

I will only add, that if, in the hot fit of fever, the evaporation is great, without cooling the skin, the fact contravenes the laws of evaporation in all other cases. No one principle in philosophy is better settled than that evaporation is followed by a diminution of heat. Hence I conclude that the abatement of fever is the *effect* of evaporation and copious discharges of fluid matter, with heat combined.

The practical deductions from this point, whichever way it may be decided, seem to be very important. If sweats are not critical to fever, as Dr. Darwin alleges, of what use are applications to induce perspiration? According to his theory, the paroxysm must begin to decline before the perspirable matter can be dislodged; the consequence is, that sudorifics can be of no use until visible sweat gives evidence of an abatement of the action of the vessels. This I apprehend to be a dangerous doctrine. Dr. Darwin is a great friend to the application of cold water to the skin in febrile paroxysms, alleging that it increases the sensorial power, by diminishing the action of the capillaries. True; but how does it diminish this action? By the abstraction of heat, or the matter of heat. This effect, then, is only a further evidence of the truth of my opinion, that fever is an actual accumulation of the matter of heat, an abstraction of a part of which is necessary to destroy the preternatural action of the vessels, and reduce it to the standard of healthy action. Whether warm or cold applications will best answer the purpose, the physician must

determine, on a view of the circumstances of each case; but the ultimate effect is the same—*an abstraction of the stimulus of heat, by copious discharges from the skin.* It is true, indeed, that formerly this doctrine was abused, and febrile patients were stifled with warm air, which proves nothing but the imperfection of the medical art, and the abuse of a valuable truth. More knowledge of the nature of disease, the structure of the body, and the effects of the cold bath, has removed the abuse, but ought not to obscure the truth.

Notwithstanding this difference of opinion, in these and some other particulars, between Dr. Darwin and myself, the reading of his works has confirmed the opinion expressed in my second letter, that the seat of most chronic affections is primarily in the skin and the sub-cutaneous vessels. I even go farther, and believe that, in all cases of fever where there is no topical inflammation, and especially in that numerous tribe of fevers called bilious or autumnal, the parts *primarily* affected are the complication of vessels called *solids*, comprehending the muscles, nerves, arteries, veins, glands, lymphatics, &c. which are spread over the bones. My opinion is founded on the following reasons.

1. The muscular parts, and the vessels enclosed in them, are the chief instruments of motion in the body, and the seat of a large portion of sensorial power.

2. The immediate causes of disease are debility, torpor of the vessels, and consequent morbid or irregular action; and the first perceptible symptoms of the fevers mentioned, are lassitude, pains in the head, spine, and muscles or membranes of the bones; *not* in the viscera.

3. The causes of the debility and irregular action of the sub-cuticular vessels are usually external, or such as primarily affect those vessels; as preternatural stimulus from heat and fatigue, inducing a loss of sensorial power by exhaustion; or cold directly producing the same effect. Contagion seems to affect the glands of the throat primarily, and then the stomach.

4. The bodies of persons dying of the fevers above-mentioned, when dissected, exhibit no evidence of local affection of the viscera sufficient to account for the disease. Sometimes all the viscera are sound, and in other cases the affections are so trifling as to induce an opinion that they were merely symptomatic, or produced in a late stage of the disease.

These, and several other facts incline me to the opinion that the external covering of the human frame is the primary seat

of fevers of the above description, as well as of chronic complaints. The stomach, however, seems to be most violently affected in cases of malignant fever; but I apprehend the violence of its affections is to be ascribed to its extreme irritability and importance in the system, not to its being the *first* affected in the order of time.

If this opinion is well founded, we have, perhaps, a satisfactory explanation of the sudden transition from apparent convalescence to death, in the malignant fever of our cities, and in the plague. It is remarked that, in the bilious plague, the fever sometimes suddenly subsides, the patient appears to be much better, converses with good cheer, and walks about his apartment for a time; when suddenly his strength fails, and he is a corpse within an hour or two. In this case it is probable that death is owing to a total extinction of sensorial power, by previous stimulus and excitement in the parts of the system most essential to life, the medullary substance of the brain and nerves. The subsidence of the fever is the first symptom of that extinction, and of an incipient mortification. If the stomach or liver was the organ primarily and chiefly affected, however painful the disease might be, I think the approaches of death would be more gradual.

The train of thinking here disclosed has led me to suspect that intermitting fevers, are, in part, to be ascribed to a cause which I have never seen mentioned—the diurnal transition from heat to cold, and the torpor of the extreme vessels in consequence of the daily effect of the latter. It is observed that tertian fevers are most prevalent in low lands, on the borders of rivers and marshes. Why in such situations? Not solely from the impression of insalubrious air or gases, but because, after the great heat, and consequent violent action of the capillaries during the day, the surface is exposed to a cold and damp air at night, and, of course, suffers a greater loss of heat and stimulus than it would in a warmer and drier atmosphere. Now it is certain, that while the heat of the day is as great about marshes as upon high and dry land, the cold of the night is more considerable; at least, the effect of cold is far more considerable upon the human body in low wet ground than upon hills. The damp vapour which arises and floats near the earth, and in which the body is immersed for many hours, if abroad, or at a window, must necessarily abstract a larger portion of heat from the skin than the drier air of a hilly country. The recurrence of this alternation for days and weeks in succession, must, upon Darwin's theory of

associability, which I believe to be well founded, produce a disease of correspondent alternations, though, perhaps, not in precisely equal times. If this conjecture is well founded, the utility of flannels to people living in such situations, and of more covering at night during the summer and autumn, as also of shutting up doors and windows at night, will receive an explanation which will serve to recommend and enforce these precautions.

I rely, with confidence, on the candour of your medical readers, to forgive this intrusion into their proper department; especially as I shall take the method that children do to appease an angry parent, and promise to do so no more.

P. S. I derive some confirmation of my opinion respecting the seat of fevers from what you have remarked in Hex. II. vol. i. p. 181, on the subject of the utility of epispastics, caustics, and other stimulants applied to the skin in the fever of last autumn. And what is the effect of calomel in the same fever, when introduced into the system so as to induce ptyalism? Does calomel serve any valuable purpose unless it salivates? and is not the effect of salivation chiefly upon the sub-cuticular organs?

ARTICLE VI.

INQUIRIES *concerning the* SPONTANEOUS CURE *of* SYPHILITIC DISEASES *by* HÆMORRHAGE: *Communicated to the Editors by Dr.* FELIX PASCALIS, *of Philadelphia, in a Paper dated Feb.* 15, 1804.

"WHEN the chordee is violent," says Mr. J. Hunter, "the inner membrane is, I suppose, so much upon the stretch as to be in some degree torn, which frequently causes a profuse bleeding from the urethra, that often relieves the patient, and even sometimes proves the cure." (Page 46. Lond. edit. 8vo.

Other medical writers have taken notice of that accident, and of its good effects; but in it they considered nothing more than an inflammation, or a local affection perfectly distinct from a venereal poison, and which might eventually be counteracted by local bleeding.

The following cases furnish us, however, with a new ground of medical theory, and, perhaps, with useful applications in practice.

A sailor who, during his homeward voyage from the West-India islands, had a continuance of venereal symptoms, especially a chancre and a gonorrhœa, immediately after his arrival in this port, exposed himself to an impure connection. Such a profuse hæmorrhage ensued, that his female companions, frightened with the consequence of his impending death, carried him to his lodging at midnight, where he remained nearly three hours bathed in his blood before medical aid could be obtained. He was speechless, and almost without pulse, when I came. On examination, I found a string of clotted blood nearly closing the urethra. This I pulled out easily, and the hæmorrhage was again set free. By pressing with the fingers from the pubes upwards, I thought it originated from the middle of the penis. Cold water was immediately applied; but more effectually I introduced into the urethra six inches of an elastic catheter of the largest size, which would certainly produce an equal and sufficient pressure. This I fixed with strings and bandages, intending to leave it, as no painful nor convulsive irritability of the parts was apprehended, since the catheter did not reach the sphincter of the bladder, nor any quantity of blood could be admitted in it. To effect a still more powerful derivation, I bled the man in the arm, but took a few ounces only, and dressed with dry lint the chancre which existed between the glans and the prepuce.—He was now in a constant faintness, with a profuse cold sweat. I therefore directed that his skin should be rubbed with hot flannel and alcohol, and that a tea-cupful of barley-water, with a little wine, should be frequently offered to him. Next day his pulse was better, he had passed urine through the catheter, and slept a little. On the third day we gave him a gentle cathartic, the operation of which sufficiently promoted his digestive powers, and he supped panadoes and broths with nutmeg. The chancre now presented white edges and a healing aspect. On the fourth day he sat on his bed; but he began to complain of the catheter, which was taken off, lest the perfect healing of the ruptured artery should be retarded by a new inflammation. All the symptoms now rapidly altered for the better. No painful sensation of the urethra remained; no kind of discharge was seen; and the chancre was filled up. I took every opportunity to ascertain that the pre-

vious disease was radically cured without the help of any specific whatever.

The other case was that of a young woman nearly gone through the period of her pregnancy, and who, guiltless and unconscious, had been previously injured. As she could neither walk nor sit up, her painful situation made it necessary to have her examined; and, indeed, the appearances were shocking. On the labia pudendi and pubes, which were much tumefied, a thickening had been formed of warts, excrescences and scabs, the whole being hardened a good deal like a cauliflower. The internal parts likewise were much dilacerated by chancres and excoriations, and bathed with ichor and pus. An anti-venereal treatment could not be thought advisable at such an advanced period. All the external means, therefore, were recommended, which, by promoting cleanliness, and counteracting inflammation, could stop the progress of the disease, and relieve pains. It was not, however, overlooked, that she would not be delivered without deep tearing of the parts, and would lose much blood. In those cases, indeed, small arteries are enlarged and relaxed by the local affection, and they prove more troublesome than larger branches, upon which pressure or ligature can be effectually applied. Ten days after I had seen this patient she was taken with a short and severe labour, and delivered of a very weak and infected child, who lived but a few hours. A hæmorrhage from the parts, very distinct from any kind of flooding, took place, and was partially abated by local remedies, but recurred at intervals during five or six days. It ceased at last, leaving, however, the favourable appearance of the cure of the syphilitic complaint, which was shortly after confirmed, without a grain of any specific whatever having been administered.

From these cases, and many others of hæmaturia, which are frequently seen to terminate the accidents of a chordee or of a gonorrhœa, I now beg leave to draw, as natural inferences—

1st. That the venereal poison does not circulate with the blood, since the remaining portion of that fluid does not retain the least character of impurity.

2dly. That although Hunter, Astruc, and others, acknowledge that the lymphatic vessels are the seat of that poison, yet it seems that, if a certain quantity of their fluids is vitiated, it coagulates immediately, does not circulate, and forms those chords which are so sensibly felt in the parts affected, or

swellings, and even buboes, on the large bundles of lymphatic vessels. Buboes, indeed, are not always seated on glands, and I have seen one at the insertion of the *humeral* muscles. There are two layers of lymphatic vessels, one superficial and the other internal: this is the reason why we frequently mistake a lymphatic swelling, deeply seated, for a nodus or exostosis.

3dly. That the vitiated or coagulated lymph becomes, in its vessels, an heterogeneous matter, which must be carried off by ulceration, or eliminated by the increased action of the arteries that secrete a new diluting lymph, or evacuated when the section of a corresponding artery causes the general pressure of the atmosphere to be in inverse ratio of the vacuum effected in some vessel, and altogether, by the muscular action of the surrounding parts, passes the lymphatic column into the artery from which it originated, where it mixes with the flowing blood.

4thly. That, in any case of threatening inflammation, and of mortification of the parts, in consequence of chancres and phymosis, the section of an artery on the preputium, or on the labia pudendi, would be justifiable in practice.

ARTICLE VII.

A singular CASE *of* HYDROCEPHALUS: *Communicated to Dr.* MILLER *by* JAMES S. STRINGHAM, *M. D. Professor of Chemistry in Columbia College, &c.*

THE subject of the following case is a female, who, when about nine days old, was attacked with symptoms of catarrh, in consequence of a sudden exposure to cold in the month of January, attended with considerable discharge from the mucous membrane of the nose, which continued till she was three months old, when it suddenly and entirely disappeared. About a week from this time, symptoms of hydrocephalus, accompanied with an enlargement of the head, commenced. Dr. Foot, of this city, was called upon, shortly after, to visit the child. The usual remedies, calomel, digitalis, epispastics, &c. were employed, but without any effect, the enlargement continuing to progress. An operation was, at length, thought advisable, with a view to ascertain whether any collection of fluid could be discovered between the dura or pia mater and the brain; but no such accumulation could be detected.

From the constant and gradual increase of the size of the head, every hope of recovery was abandoned, and her physician relinquished his attendance.

When I was requested to visit her she was two years and three months old, consequently had laboured two years under this disease of the head, which I found of so astonishing a bulk that I have been induced to present you not only with an account of its dimensions, but also with such other information relative to the subject as I have been able to procure from the mother of the child. The distance between the internal angles of the eyes measured two inches; between the external extremities of the arches of the eye-brows, six and a quarter inches; between the upper extremities of the ears (measured directly across the parietal bones), thirteen and an half inches; between the superior part of the nasal and lambdoidal sutures, along the junction of the parietal bones, twenty inches; the circumference of the head was two feet six and an half inches.

It appears, from the mother's account, that, since the commencement of this enlargement of the head, a total suppression of the mucous discharge from the nose took place, which has never since been observed in the smallest degree, notwithstanding the exhibition of powerful errhines, which were incapable of producing even the slightest act of sneezing. The child cut her teeth at the usual period; but it is a circumstance worthy of remark, that, in a short time after, the upper row gradually softened and broke off even with the gums, while the under teeth remained firm, and are now perfectly sound. The pupils of the eyes are somewhat dilated, though a very evident contraction takes place in consequence of a sudden exposure to light. She hears uncommonly well, and can not only distinguish with accuracy the taste between different kinds of food, but, in this respect, exhibits much caprice. At present she prefers bread and milk to any other species of aliment. Her appetite is good, though by no means voracious. During the whole course of the disease, the alvine and urinary discharges have been perfectly regular and natural: her memory is in no respect impaired: she evinces a predilection for music; and such is the strength of her recollection, that, after hearing an air once sung, she can repeat it, though a lapse of twenty-four hours should intervene. Sometimes she is very lively, and not unfrequently displays the hilarity of her spirits by laughing so loud as to be heard in every part of the room. She moves her left arm with apparent

ease, though she cannot elevate the hand to her head. Over the voluntary muscles of the right arm she appears to have lost all controul. In damp weather the pain in her head is most frequent and violent. She is not much inclined to sleep, but, when in this state, moans constantly, and is frequently observed to startle and wake as if in a fright. In bed she is extremely restless, perpetually turning from the one side to the other. The motion of her legs is somewhat impaired. In every respect (the head excepted) her body is of a natural size, though, contrary to every thing that might be expected, she is rather taller than children in general of her age, and no marks of emaciation or deficiency of action in the lymphatic system are to be observed. The mother remarked to me that her other children began to articulate many words so as to be understood when they were one year old, but that this child had not spoken any thing intelligibly till she had attained her second year; but so rapid was the progress she then made, that in three months from that time she could not only distinguish by name every object which surrounded her, but could communicate to her attendants, without any difficulty, those ideas with which her mind was most strongly impressed. The enlargement of this child's head still continues to progress; and, as she retains her strength, appetite and spirits, she may probably still live a considerable time: hence it is impossible to say what may be the particular boundaries destined to limit its extension.

It is evident from the very uncommon size of the head in this case, either that the bones of the cranium must be separated from each other by the pressure of a fluid internally collected, or that the integuments must have undergone this astonishing dilatation in consequence of an accumulation of water between them and the bones of the head.

That the collection was internal and deep seated at the time of Dr. Foot's attendance, is evident from the result of the operation already noticed.

That the bones composing the head of a child at this age should, by a mechanical force, be so separated as to admit of an uncommon enlargement, I can easily conceive; but that a quantity of fluid sufficient to produce such an effect should be accumulated in the ventricles of the brain, without being succeeded by marks of serious and more general derangement, was, I confess, altogether unexpected. None of those symptoms could be discovered which are generally the effects of great pressure upon the nerves at their origin. The mucous

membrane of the nose, indeed, appeared to be no longer irritable, and the motion of the arms and legs was somewhat impaired, but in no other respect was a diminution of nervous power indicated. Her hearing was uncommonly acute; her perception of objects perfectly distinct; the functions of the stomach and bowels were more regularly performed than is generally observed even in a state of health; in short, the whole disease appeared to be confined to an increased size of the head, and a diminution of power over the voluntary muscles of the upper and lower extremities.

That the sagittal suture was opened, I have very little doubt, since, notwithstanding considerable pressure, no resistance similar to that of a bony substance could be perceived, although this was perfectly distinct in many other parts of the head.

Do not the circumstances which preceded this child's attack strongly corroborate the opinion of Dr. Garnett, that hydrocephalus is, in its first stage, an inflammatory affection? We find that no symptoms of the disease appeared till the increased discharge (which had been kept up nearly three months from the child's nose in consequence of catarrh) was suddenly arrested. This preternatural secretion of the mucous membrane clearly evinced a determination of blood to the vessels of the head, and the discharge from the nose was the mean employed by nature to obviate the effects of congestion. This once checked, the consequences soon became apparent; viz. a great turgidity of the vessels of the head, and an extravasation into the ventricles of the brain. Such is the plethoric state, particularly of the veins, in this part, that they are distended to more than double their usual size, and bear no small resemblance to those which have been injected for anatomical purposes.

Is it not probable, that if the suppressed discharge could have been immediately restored, or a vicarious one instituted on the first appearance of the hydrocephalic symptoms, all the horrors of the disease might, in this case, have been avoided? This circumstance affords an useful hint to practitioners as to the *modus medendi* of hydrocephalus in general, and serves to point out in what way this affection may very frequently be induced.

The reduction of the upper teeth from a bony to a soft and gelatinous consistence may be easily accounted for as the effect of an excess of phosphoric acid in the blood; but that the under row should not have been operated upon by the

same cause is a circumstance by no means to be so readily explained.

As the child is still living, I shall, for the present, suspend any further observations, and shall give every attention to the different phenomena which may take place from this time to her death, which, it is scarcely necessary to say, I consider as inevitable. These shall constitute the matter of a subsequent communication.

REVIEW.

ART. I. *An Essay on the Manufacturing Interest of the United States; with Remarks on some Passages contained in the Report of the Committee of Commerce and Manufactures. By a Member of the Society of Artists and Manufacturers of Philadelphia. To which is annexed, the Memorial of that Society to Congress.* 8vo. pp. 49. *Philadelphia.* Graves. 1804.

SIR JOSIAH CHILD, an English writer on political economy, who published, in the year 1694, a celebrated Discourse on Trade, treats, in the second chapter of his work, on the *relief and employment of the poor.* He writes, 1. "That the poor in England have always been in a *most sad and wretched condition, some famished for want of bread, others starved with cold and nakedness, and many whole families, in all the out-parts of cities and great towns, commonly remain in a languishing, nasty, and useless condition, uncomfortable to themselves and unprofitable to the kingdom.* This is confessed and lamented by all men." 2. "That the children of our poor, bred up in beggary and laziness, do, by that means, become not only of *unhealthy bodies,* and more than ordinarily subject *to many loathsome diseases,* whereof very many *die in their tender age,* and if any of them do arrive to years and strength, they are, by their idle habits, contracted in their youth, rendered for ever after indisposed to labour, and serve only to stock the kingdom with thieves and beggars." 3. "That if all our impotent poor were provided for, and those of both sexes and all ages that can do work of any kind, employed, it would redound some hundreds of thousands of pounds per annum to the public advantage."

The condition of this class of the people there continues to be very shocking and deplorable after the lapse of more than an hundred years. Besides the attention which parliament has given to their relief in the system of laws and regulations for the poor, we find municipalities and other societies labouring in the same cause almost all over the United Kingdoms. The misery, the sickness, the loathsomeness and mortality prevalent among the lower orders of subjects in Great-Britain,

have been detailed in many a benevolent memoir and distressful treatise. The sixth volume of our first Hexade, p. 110 and p. 440, contains extracts from authentic documents of the shocking condition of the indigent in Manchester, Leeds, Edinburgh, and Newcastle. From the publications of Mr. Howard, Mr. Bernard, Mr. Nield, Mr. Colquhoun, and a multitude of other gentlemen, we learn that Chester, Liverpool, and the metropolis London itself, have suffered excessively, and are still suffering, from the ravages of a febrile distemper, formerly called plague, but now termed typhous contagious or infectious fever. As far as we can learn, and we have read much of what has been written by the philanthropists on the subject, the yellow fever of the American cities is a disease of temporary duration and inconsiderable mortality, when compared to the never-ceasing pestilence of the thickly-settled and manufacturing towns of Europe.

It seems to be a general fact among the civilized people of the temperate and colder regions of the globe, that want is the cause of uncleanness in their persons, clothes, beds and habitations, and uncleanness is the fore-runner of the sore and diversified maladies which are delineated in such woful colours by those who have entered into the abodes of misery to behold them.

There is just reason to believe that these pestilential ailments are more frequent and fatal among the necessitous and crowded poor of trading and manufacturing cities, than in the more scattered settlements of the country and the airy labours of the field. This long ago appeared so evident to the Italian physician Rammazzini, that he wrote a detailed and elaborate book expressly on the diseases to which tradesmen and artizans were peculiarly liable from the nature of their occupations.

This state of things, confessedly and undeniably prevalent in many parts of modern Europe, is to be traced to the tenure of landed property, in large fiefs or manors, by a small number of proprietors—to the laws regulating descents, whereby the estate is vested in the eldest son, or next male relative, to the exclusion of the younger and collateral branches of the family—and to the plenum of population at which many countries have arrived, rendering labour cheap among the multitude of competitors, and, consequently, making subsistence difficult to procure.

We have been induced to make these reflections, with an intention of repelling a fallacious doctrine contained in the publication before us, that Congress has been inattentive to

the manufacturing interests of the United States, and that, therefore, nothing effectual therein can ever be done by individual exertion. The writer insists upon it, that the *clothing* and *cutlery* manufactures ought to be encouraged, by laying high prohibitory and protecting duties; that, because Congress has not given such encouragement, the finer products of the vice, the anvil, and the loom, can scarcely, if at all, be introduced into the country; and that the only method of rendering the interior tracts valuable, is by establishing manufactories of the fine articles of cotton, silk, and the metals. In his zeal for these branches of industry, he seems to forget almost all other considerations. His enthusiasm leads him to write in positive and unqualified terms; and because his long, partial, and tedious memorial has not been so much heeded in Congress as he thinks such an extraordinary composition deserved, he indulges a vein of spleen and ill-humour against both houses of the national legislature. In the plenitude and certainty of his knowledge upon a subject of no small intricacy, he charges the Committee of Commerce and Manufactures with profound ignorance of their duty and business, and treats their report on his and other similar petitions as distinguished for its looseness, carelessness, and want of information. This sort of vanity, intemperateness, and disrespect, is not calculated to make converts or to conciliate esteem. It is, however, natural enough for a person to be discontented who is frustrated in his schemes of business and profit. But the Congress possessed too much wisdom and patriotism to give an exclusive privilege of the *dry-good* and *hardware* manufactures to any selfish applicant and his associates, whereby there would be great diminution of the public revenue, the ruin of our foreign commerce, the interruption of our navigation, and serious detriment to the great body of the good people of the nation. If he is determined to be immediately a capital manufacturer in these branches, we advise him to set up his favourite business in Bengal, Great-Britain, or some other country where a policy prevails more accordant to his wishes. It is not likely that he can carry his point in America, either by that kind of temper or that degree of logic which distinguish his piece.

In the land which this writer so much admires for its manufacturing exertions and skill, there is a state of society very different from that in the United States. There the people multiply faster than the means of regular subsistence, by spontaneous industry, can be procured for them in the parishes of their residence. Restricted within the limits of a small island,

there is no space to accommodate this growing population. There are no new lands for them to occupy, and very trifling subdivisions of the old fiefs. Thus hands increased more rapidly than employment could be found for them. Some of these betook themselves to pilfering, stealing, and robbing; and, after going through the process of jails and courts, were suspended from the gallows. Others of them that were either torpid or honest, were packed together as paupers in the parish workhouses. From the wretches immured in the prisons and bridewells, a portion was listed for soldiers, to keep up the land-establishment; and another part taken out for naval service on board the public ships of war. By the same pinching extremities are vast numbers driven into the service of the rich as domestics of various kinds. But experience at last proved that, although so many of the present race were disposed of as servants, marines, soldiers, paupers, and felons, there was a surplusage of a great multitude for whom no adequate provision had been made. Here was a condition of society exactly adapted to the introduction of manufactures—crowds of indigent persons, cheapness of labour, and nothing else to betake themselves to. Under these circumstances the government wisely interfered, and, by legislating in favour of domestic arts and trades, has formed, out of the indigent members of society, the class of labouring manufacturers, who, together with the capitalists their employers, have carried some of those branches of industry to greater excellence than is known any where else on the globe.

In the United States the tenure of lands, the laws of inheritance, and the state of society, are widely different. Every working man who desires it, may have ground of his own to settle upon. Every common labourer receives high wages for his toil. If the business he attempts does not suit him, he has no statute of apprenticeship to hinder him from taking up another. And if one place does not correspond with his expectations, he may freely move and try some more fortunate spot. Men can live better and happier by reason of the free scope given to their exertions here, than in the thronged population, and under the oppressive laws of most foreign governments. The time will possibly one day arrive, though it seems to us far distant, when the competition for employment and subsistence will become as great in our region as in countries that have been longer peopled. Then, and not sooner, probably, the wishes of this writer will be realized, of having the women and girls of the United States taken from their family em-

ployments to work in cotton-manufactories; and the boys, instead of going to school to learn what it becomes free citizens to know, engaged in the like routine of weekly labour to make scissars and pins. This, we must own, would be very lucrative and desirable to the mere monied capitalists, but, at the same time, most painful and humiliating to the animated automatons whom they would compel to perform their drudgery, and earn for them grand estates. The lover of his country and its people's happiness feels indignant at the rapacity which this member of the Society of Artists and Manufactures manifests, and at the outrages he would commit against the sons and daughters of this land of plenty if he could. The day is not yet come when the lowness of wages, and the difficulty of gaining a subsistence, oblige them to submit to such service. He must wait awhile longer, and, in the mean time, throw the blame upon Congress.

But it is time to relate the history of the publication before us. A memorial of uncommon length, and more resembling a dissertation for the press than an address to a legislative body, was presented to the House of Representatives during the winter of 1804. It contained an argument in favour of protecting and establishing manufactures in the United States. This address (for they were too proud or petulant to call it a *petition*, p. 11) was referred to the Standing Committee of Commerce and Manufactures. That Committee, well aware of the importance of the subject, and of the earnestness of the applicants, directed their chairman to move the House for an order to print it for the more convenient use of the members. To this the House agreed, and the memorial was printed and distributed in the customary way. The Committee, in addition to this mark of respect, framed a report on the subject jointly with various other petitions of a similar nature. This report, which was the result of much care and inquiry, was read in the House, printed, and referred for further consideration to the Committee of Ways and Means. Having undergone revision in that Committee, so much of it as it was judged expedient to adopt was incorporated into a bill, which was finally passed into a law.

That memorial and report occupy seventeen pages of the work under consideration. If the compiler intended to exhibit an entire view of the case, he ought to have printed the statute also, that the proceedings of Congress itself, as well as of the Committees of the House, might be understood. This is a great defect in the publication, especially as, in his

preface, he declares, in menacing terms, that it shall be reprinted in Great-Britain for the information of the manufacturers of that country.—The other thirty-two pages of the Essay are, in a good degree, occupied by the writer's commentary and invective.

It becomes him also to inform the people on the other side of the Atlantic, that already many manufactures, of such kinds as our people are willing to engage in, are carried on thriftily in the United States, and we are even now a busy manufacturing people. Furnaces and forges for iron—the casting and boring of cannon—casting of stoves, grates, and hollow ware—the making of musquets and bayonets—the manufacture of nails, of wool-cards, of steelyards and balances, of anchors—the various branches of the brass-founder and copper-smith's business—the rolling of copper—the making of gold and silver plate—the founding of printing types—the erection of steam-engines—and the coining of money, are very well performed. They may also learn, that shoes, boots, trunks, harness, saddles, breeches, gloves, belts, cartridge-boxes, and buckets, are made from leather of our own tanning. Breweries, distilleries, ship-building, carving, carriage-making, sugar-refineries, paper-making and staining, the printing and binding of books, mill-machinery, dyeing, and the preparation of ink, are most of them carried on regularly, and several with very large capitals. Hats, muffs, tippets, umbrellas, ropes, cables, cordage, gunpowder, starch, soap, glue, tobacco and snuff, pot-ash, farming tools, combs, cabinet-ware and joiner's work, glass, earthen-ware, and brushes, are also manufactured to considerable extent. And by the domestic industry of the Middle and Northern States, many coatings, stockings, blankets, sheetings, and other woollen, linen, and cotton goods of the coarser kinds, are manufactured in families.

He may tell them further, that, to promote manufactures, Congress permits all kinds of undressed furs, all manufactures of the United States, unmanufactured woods and wool, plaster of Paris, lapis calaminaris, tin in pigs and plates, tools of the trade or profession, and personal baggage, of persons who come to settle, unwrought burr-stones, unwrought clay, dyeing drugs, metallic antimony, copper in plates, pigs and bars, raw hides and skins, sulphur, old pewter, brass and iron wire, rags of all kinds, and bullion, to be entered free from imposts. And its protecting duties on the greater part, if not all foreign imported manufactures, are as high as sound policy will warrant. In this Congress has manifested great judgment, and regard for

the general interest of the country; only it may be doubted whether the duties on foreign refined sugar, hats, and leather, are not actually more favourable to the domestic manufacturer than, under existing circumstances, they ought to be.

We beg this writer to reflect a little on his own fallibility, and to consider the high trust and responsibility reposed in the representatives of the people. It is hard to conceive wherefore, or through what motives, they should be opposed to the true interests of their constituents. We believe they have hitherto acted with vigilance and ability in the difficult case of insuring revenue in the easiest way on the one part, and of preventing scarcity, dearness, and monopoly on the other. And we have full confidence in the enlightened and liberal survey which will continue, from time to time, to be taken of this important and complicated subject, and of the intelligence, as well as of the inclination of Congress so to adapt legislative measures to the varying circumstances of society and the times, that the fiscal, agricultural, mercantile, and manufacturing interests shall all receive due superintendence and protection. And instead of blaming them for not doing more, we seize the present opportunity to express our warm approbation of the great deal which they have done.

ART. II. *Letters from his Excellency* George Washington *to* Arthur Young, *Esq. F. R. S. and Sir* John Sinclair, *Bart. M. P. containing an Account of his Husbandry, with his Opinions on various Questions in Agriculture, and many Particulars of the Rural Economy of the United States.* 8vo. pp. 128. *Alexandria.* Cottom & Stewart. 1803.

FOR these posthumous pieces of our illustrious countryman and patriot, we are indebted to the two distinguished persons in Great-Britain who had received them from him during his life-time, and who have published them since his death. It seems that the correspondence arose between Mr. Washington and Mr. Young, in consequence of an application made by the former of these gentlemen to the latter for a bailiff or land-steward to be sent to him from England. Mr. Young had understood that President Washington was very fond of agriculture, and had been much deceived or disappointed in several persons who had been sent him from that country to act in such a capacity. Accordingly the agricultural annalist wrote to the planter of Mount-Vernon, assuring him of the

desire he felt to be serviceable to him in furthering his farming pursuits. The acceptance of the offer gave rise to the letters which passed between these two rural economists. These occupy one hundred and fourteen pages of the volume before us.

The other fourteen pages contain eight or nine short letters from the same writer to the noble baronet who compiled the Statistical Account of Scotland. This part of the correspondence appears to have arisen from a letter, a pamphlet, and some papers, which Sir John, in 1792, had addressed to Mr. W. and for which the General had returned a polite and respectful answer.

Since the death of their American correspondent, both Mr. Young and Sir John Sinclair have felt themselves authorized to offer his epistles to the world. And although the propriety of committing all a man's private correspondence to the press in this way may be fairly questioned, yet, in the present case, it must be owned there is a variety of matter disclosed which gratifies, to a considerable extent, the curiosity of the reader, and excites in him no inconsiderable share of interest.

This intercourse commenced with Mr. Young as long ago as 1786, after the General had resigned his military authority, and, covered with glory and applause, had retired to his estate in Virginia. From that time to 1791 there were reciprocal good offices between them; Mr. Young executing Mr. W.'s orders in England for seeds, machines, books, &c. and Mr. W. communicating to Mr. Young various information on prices current of farming stock, on the raising of sheep and wool, on the propagation of mules, and several other subjects.

The correspondence continued after Mr. W. was elected President of the United States. During that time (1791) Mr. Young addressed him a letter, soliciting information on the system of farming, the value of land, and the prices of produce in various parts of Fredon. To this the President made a reply, in part, himself, and addressed a circular epistle, requesting facts on those points, to several of the best informed gentlemen in the States of New-York, New-Jersey, Pennsylvania, Maryland and Virginia. From some of those who dwell in the three latter of these States replies were received; but from New-York and New-Jersey no answers ever came to hand. From these the reader may learn many authentic particulars concerning the value and improvement of lands in York and Franklin counties, in Pennsylvania (p. 25); in

Montgomery, Frederick and Washington counties, in Maryland (p. 33); and in Fairfax, Prince William, Fauquier, Loudon and Berkeley counties, in Virginia (p. 40). The names of the writers of these different pieces of intelligence, though of unquestionable authority, are suppressed.

But there are several names given at full length, such as those of the late Samuel Powel, Mr. Jefferson, Judge Peters, and Mr. Hamilton. From each of these President W. collected statements, recitals, explanations, and facts. And these, together with those mentioned in the preceding paragraph, he carefully transmitted to the Secretary of the British Board of Agriculture. That person has now printed the whole collection, which, as it is the largest, so it is by far the most instructive part of the work before us. They extend from the 24th to the 104th page. We were very much diverted with the strain of argumentation, irony and reproof contained in Mr. Jefferson's observations upon one of Mr. Young's letters to Gen. W. (p. 95).

The letters to Mr. Sinclair are of a less important kind. The most remarkable idea they contain is the project for having a Board of Agriculture established by authority of Congress; a project which was recommended in one of President W.'s speeches to that body, but which it is, perhaps, a pity the legislature never could be prevailed to act upon.

On the whole, we believe most readers, like ourselves, will contemplate with additional respect our great warrior-statesman, after having read his observations on the cultivation of the earth. And we feel a confidence that there are many things which our rural economists will seek in vain, in any other publication.

ART. III. *A Brief Retrospect of the Eighteenth Century, &c. By* Samuel Miller, *A. M. &c. &c. 2 Vols. 8vo.*

[Continued from Hex. II. vol. i. p. 390, and concluded.]

TRACING the progress of invention and discovery during the time which Mr. Miller had prescribed to himself, he examines, in his fifth chapter, the improvements made in Geography. In about thirty pages he has given an agreeable summary of what has been done by different nations and individuals, in the course of expeditions by land and water, to enlarge our knowledge of this department of science.

The improvements in Mathematics, Navigation, and Agriculture, are next treated of in a distinct chapter. These are each sketched with strong and able strokes. Next follow surveys of the Mechanic Arts, in respect to cottons, calicoes, muslins, carding, weaving, steam-engines, bridges, mills, wheel-carriages, coining, printing, tanning, brewing, bleaching, dyeing, and a variety of other operations. To these succeeds a review of the Fine Arts, in which the progress of painting, sculpture, engraving, music, and architecture, is successively pointed out. After which Mr. M. has delivered his sentiments on *Physiognomy*. These, on account of their curious and amusing nature, we should copy for the information of our readers, were we not restrained by want of room.

The remaining part of this work treats of matters which, though highly interesting, scarcely lie within our province. We therefore barely mention, that the twelfth chapter is devoted to the Philosophy of the Human Mind, the thirteenth to Classical Literature, and the fourteenth to the Hebrew, Arabic, Persian, Hindoo, and Chinese species of Oriental Literature. After having presented his retrospective summary of each of these, Mr. M. takes a survey of the modern languages, particularly of the English, French, German, Swedish, and Russian. He then inquires into the Philosophy of Language, the Progress of Speech, and the Doctrine of Universal Grammar. He discusses also the character of those writers who, during the eighteenth century, distinguished themselves by their historical and biographical performances. In his chapter on Fictitious Narrative, or the kind of compositions called novels and romances, the author appears to us to have given a just and discriminating account of those fashionable and seductive writings. He has reviewed the Poetry of the past century, as it presented itself to him, under the epic, didactic, moral and devotional forms; and he has described the muse in her satirical, descriptive, pastoral, lyric, elegiac and dramatic moods.

In the accounts of the literary and political journals which have appeared during the period of the retrospect, Mr. M. has proved himself to be well acquainted with the subject which he discusses. Nor is he less interesting in what he has offered in his twenty-third and twenty-fourth chapters on Literary and Scientific Associations, and on Encyclopædias and Dictionaries of Arts and Sciences. It would give us much pleasure, did our design permit, to follow him through the chapter on the arduous and controverted subject

of Education, and to dilate upon the castigation he has given to the unnatural tribe of modern Amazons, and to the zealots who preach the perfectibility of man. The last chapter of this extensive work is bestowed upon the consideration of several nations which have but lately acquired a literary character. Those which he has selected for particular examination are Russia, Germany, and Fredon. On the latter of these Mr. M. has taken much pains, and collected a precious amount of information. He has traced the history of the seminaries of learning, and of the learned men, in the United States, in a minute and chronological manner. The narrative of the foundation and endowment of our colleges is interspersed with lively anecdotes, and biographical sketches of their patrons, presidents, and graduates. This may be reckoned an exquisite portion of American history, and worthy of the perusal of every person who wishes to be well informed of the literary institutions of his country. The author offers (p. 404) the following excellent explanation and apology for some defects in Fredish authorship when compared with British.

"It must, however, after all, be acknowledged, that what is called a *liberal education* in the United States, is, in common, less accurate and complete; the erudition of our native citizens, with some exceptions, less extensive and profound; and the works published by American authors, in general, less learned, instructive, and elegant,* than are found in Great-Britain, and some of the more enlightened nations on the eastern continent. These facts, it is apprehended, arise not from any deficiency of talents in our country, nor from any inaptitude in its soil or atmosphere to promote the growth of genius; but from one or another, and, in some cases, from a combination of the following causes.

"1. *Defective plans and means of instruction in our seminaries of learning.* The great majority of our colleges have very inadequate funds. The consequence is, that in most of them the professors are few in number, and have assigned to them too large a field of instruction. Hence they can convey but very superficial knowledge of the various branches which it is made their duty to teach, and if well qualified themselves, which is far from being always the case, find it impossible

* "It is not meant to be denied that a few of the works published in America are as profound and instructive as any on similar subjects published elsewhere. It is simply intended to give a *general* character of American publications, liable to such exceptions as the mind of the well-informed reader will readily supply."

to do justice to the pupils. In some instances, also, the trustees or governors of American colleges, either from their own ignorance, or in compliance with popular prejudice, have so contracted the time requisite for completing a course of instruction, as to render it necessary wholly to dispense with, or lightly to hurry over, some of the most important branches of knowledge. Accordingly, in some of these institutions, mathematical science is unpopular, and the acquisition of as little as possible, especially of the higher branches of it, enjoined on the student. In others, classic literature, and especially the Greek language,* is in low estimation, and not more studied than is indispensably necessary to obtaining a *diploma*. If well-bred scholars ever issue from such seminaries, they must be formed by a degree of private and individual application rarely to be met with in youth.

"2. *Want of leisure.* The comparatively equal distribution of property in America, while it produces the most benign political and moral effects, is by no means friendly to great acquisitions in literature and science. In such a state of society there can be few persons of leisure. It is necessary that almost all should be engaged in some active pursuit. Accordingly, in the United States, the greater number of those who pass through a course of what is called liberal education, in the hurried manner which has been mentioned, engage, immediately after leaving college, in the study or business to which they propose to devote themselves. Having run over the preliminary steps of instruction in this business, probably in a manner no less hurried and superficial than their academic studies, they instantly commence its practical pursuit; and are, perhaps, during the remainder of life, consigned to a daily toil for support, which precludes them from reading, and especially from gaining much knowledge out of their particular profession. Such is the career of ninety-nine out of an hundred of those in our country who belong to the learned professions. When the alternative either lies, or is supposed to lie, between erudition and poverty, or comfortable affluence and moderate learning, it is not difficult to conjecture which side will be chosen; nor is it surprising that, in such a state of things, there should be less profound erudition, less elegant accomplishment in literature, than where a

* "In some American colleges, we are told that no more knowledge of Greek is required in those who graduate *Bachelor of Arts*, than that which may be derived from the Grammar and the Greek Testament."

considerable number enjoy all the advantages of exemption from laborious duties, and all the accommodations of opulent leisure.

"To this circumstance may be ascribed the superficial and unpolished character of many of our native publications. All that their authors, in many cases, want, to render them more replete with instruction, more attractive in manner, and, of course, more worthy of public approbation, is *leisure*. But, able only to redeem a few hasty hours for literary pursuits, from the employments which give them bread, they must necessarily, if they publish at all, send forth productions, from time to time, bearing all the marks of haste and immature reflection.

"3. *Want of encouragement to learning.* Men cannot be expected to labour without the hope of some adequate reward. Genius must be nourished by patronage, as well as strengthened by culture. Where substantial emoluments may be derived from literary exertion, there, and there alone, will it be frequently undertaken to any considerable extent. Hence, in those countries where genius and learning are best rewarded, there they are ever found to be most cultivated. In the United States the rewards of literature are small and uncertain. The people cannot afford to remunerate eminent talents or great acquirements. Booksellers, the great patrons of learning in modern times, are, in America, too poor to foster and reward the efforts of genius. There are no rich *fellowships* in our universities to excite the ambition of students; no large ecclesiastical benefices to animate the exertions of literary divines.* Academic chairs are usually connected with such small salaries that they present little temptation to the scholar; and, finally, the State offers very inconsiderable motives for the acquisition of knowledge, and the exertion of talents. Its rewards are small, and its favour capricious. Can it be wondered, then, that those who have some acquaintance with books, and hold important stations, are more anxious to secure pecuniary advantages, and to place themselves in a situation independent of popular favour, than to make advances in literature, or to

* "The author would by no means be understood to express an opinion, that such immoderately lucrative places, either in Church or in State, are, on the whole, useful or desirable. He is persuaded that they are much more productive of mischief than of advantage. But that they often excite literary ambition, and afford, in many instances, convenient and useful leisure to literary characters, will scarcely be questioned by those who have paid any attention to the subject."

do honour to their country by the display of intellectual pre-eminence?

"Besides, the spirit of our people is *commercial.* It has been said, and perhaps with some justice, that the *love of gain* peculiarly characterizes the inhabitants of the United States. The tendency of this spirit to discourage literature is obvious. In such a state of society men will not only be apt to bend their whole attention to the acquirement of property, and neglect the cultivation of their minds as an affair of secondary moment; but letters and science will seldom be found in high estimation; the amount of wealth will be the principal test of influence; the learned will experience but little reward either of honour or emolument; and, of course, superficial education will be the prevailing character.

"Nor is it of less importance here to recollect, that the nature of our connection with Great-Britain has operated, and continues to operate unfavourably to the progress of American literature. Long accustomed to a state of colonial dependence on that enlightened and cultivated nation, we have also been accustomed to derive from her the supplies for our literary wants. And still connected with her by the ties of language, manners, taste, and commercial intercourse, her literature, science and arts may be considered as ours. Being able, therefore, with so much ease, to reap the fruits of her fields, we have not sufficient inducement to cultivate our own. And even when an excellent production of the American soil is offered to the public, it is generally undervalued and neglected. A large portion of our citizens seem to entertain the idea, that nothing worthy of patronage can be produced on this side of the Atlantic. Instead of being prompted to a more liberal encouragement of genius because it is American, their prejudices, on this account, are rather excited against it.*

"4. *Want of books.* In the capital cities of Europe, the votary of literature is surrounded with immense libraries, to which he may easily obtain access; and even in many of the

* "The writer in the *Monthly Magazine,* whose strictures on American literature were before mentioned, represents the inhabitants of the United States as having strong prejudices in favour of their own productions, and ridicules them for preferring American publications to all others. In this, as well as in most of his assertions, he discovers profound ignorance of the subject. The fact is directly the reverse. Americans are too apt to join with ignorant or fastidious foreigners, in undervaluing and decrying our domestic literature; and this circumstance is one of the numerous obstacles which have operated to discourage literary exertions on this side of the Atlantic, and to impede our literary progress."

smaller towns, books on any subject, and to almost any number, may be easily obtained. It is otherwise in America. Here the student, in addition to all the other obstacles which lie in his way, has often to spend as much time and thought to obtain a particular book, as the reading it ten times would cost. Our public libraries are few, and, compared with those of Europe, small. Nor is this defect supplied by large private collections; these are also rare. And to render the evil still more grievous, the number of literary and enterprizing booksellers is yet smaller. It is only within two or three years that we have begun to receive, with any kind of regularity or promptitude, the best British works as they issue from the press.

"Such are some of the causes which have hitherto impeded the progress of American literature. Their influence, however, is gradually declining, and the literary prospects of our country are brightening every day. Letters and science are becoming more important in the public estimation. The number of learned men is becoming rapidly greater. The plans and means of instruction in our seminaries of learning, though by no means improving in all respects, are, in some, receiving constant melioration. The emulation of founding and sustaining a national character in science and learning begins to be more generally felt, and, from time to time, will doubtless be augmented. A larger proportion of the growing wealth of our country will hereafter be devoted to the improvements of knowledge, and especially to the furtherance of all the means by which scientific discoveries are brought within popular reach, and rendered subservient to practical utility. American publications are every day growing more numerous, and rising in respectability of character. Public and private libraries are becoming more numerous and extensive. The taste in composition among our writers is making very sensible progress in correctness and refinement. American authors of merit meet with more liberal encouragement; and when the time shall arrive that we can give to our votaries of literature the same leisure, and the same stimulants to exertion with which they are favoured in Europe, it may be confidently predicted, that letters will flourish as much in America as in any part of the world; and that we shall be able to make some return to our transatlantic brethren, for the rich stores of useful knowledge which they have been pouring upon us for nearly two centuries."

We perused with peculiar gratification the ample recapitu-

lation with which Mr. M. concludes the work. Under fifteen different heads he states what he deems the discriminating features of the eighteenth century; such as that it was, 1. An age of free inquiry; 2. Of physical science; 3. Of economical science; 4. Of experiment; 5. Of revolutions in science; 6. Of printing; 7. Of books; 8. Of unprecedented diffusion of knowledge; 9. Of superficial learning; 10. Of taste and refinement; 11. Of infidel philosophy; 12. Of Christian science; 13. Of translations; 14. Of literary honours; and, 15. Of literary and scientific intercourse. But for the reasons in favour of each of these propositions we must refer to the original itself. We take our leave of these two ample and instructive volumes, by remarking that the author has illustrated the text of both with large and learned notes, which will be found highly useful to the candid and serious inquirer. In one of these are some pointed strictures on Darwin's doctrine of materialism.

ART. IV. *A Brief Account of the New-York Hospital.* 8vo. pp. 72. *New-York.* Collins & Son. 1804.

BEFORE us is a publication of a kind which we are very glad to see. It is a concise history of one of the most considerable public institutions in the city to which it belongs. This hospital is well managed, and is in a very thriving condition. Latterly it has been considerably enlarged, and adorned with a cupola. From this there is a superb and extensive prospect of the city and its environs. The situation of this asylum for the sick and disabled is high and healthy. The soil is a coarse dry gravel. The space is open and admirably ventilated; and, fortunately, there is no danger of having it encroached upon and hemmed in by neighbouring houses. It may be said, with truth, that the hospital patients breathe the best air of the city.

In the collection of papers herein offered to the public, we find the charter granted by the Earl of Dunmore, when Governor of the province, a few years before the revolutionary war began; together with the rules and orders made in pursuance of the powers conferred by the charter, for accomplishing its objects. We observe also a catalogue of between five and six hundred books, belonging to the library of the New-York Hospital; and the regulations by which students of physic and other persons may have access to the well-

assorted and instructive volumes which it contains. The objects received in this hospital are all the ordinary cases in physic and surgery, pregnant women and lunatics.

Besides an agreeable historial sketch of the institution, there are several instructive tables of the patients admitted into this hospital. We learn from them, that, during the eight years which began with the 31st of January, 1795, and ended with the 31st of December, 1803, the number of patients admitted was 4922. Of these 1201, or nearly a fourth part, were afflicted with the venereal disease, and 215 with madness! Of 4056 discharged patients, there were found to be natives of the following countries, to wit: "Of Asia 2, Africa 50, Algiers 1, Denmark 21, England 406, East-Indies 35, France 41, Fredonia 1895, Germany 147, Holland 40, Ireland 1088, Italy 18, Norway 5, Prussia 12, Poland 1, Portugal 23, Russia 4, Scotland 148, Spain 32, Sweden 30, West-Indies 57."

To us it appears that this publication is well calculated to give the information which is wanted concerning the hospital to all our curious inquirers and political economists at home, to all observing and intelligent travellers, and more particularly to all the young men who intend to avail themselves of the great opportunities afforded by this institution, to improve in the professions of physic and surgery. And, if we mistake not, it carries internal evidence of that calculating and methodizing spirit of Thomas Eddy, Esq. with which the public are well acquainted, from a former specimen he gave them, in his excellent View of the State-Prison of New-York, printed some years since.

ART. V. *The Doctrine of Phlogiston established, and that of the Composition of Water refuted. The second Edition, with Additions. By* Joseph Priestley, *LL. D. F. R. S. &c.* 8vo. pp. 119. *Northumberland.* Kennedy. 1803.

SO full an account was given of the first edition of this publication, in the year 1800, in the third volume of our first Hexade, p. 379 & seq. that there will be no necessity of going into a full examination of what is contained in this second edition. By turning to the exhibition we then made of this controversy among the chemists, the reader will be correctly informed of the points of difference between the parties as they stood at that time.

From the time that the publication of the first edition was

made, to the appearance of the second, Dr. Priestley was frequently engaged in making original experiments, in examining the experiments of others, and in soliciting further attention to the subject. Since his settlement in America, he found no reason to change the opinion he had espoused while in Europe, of the fallacy of much of the new or antiphlogistic chemistry. In spite of the numbers who had been converted to the modern system, he was convinced, by the result of many experiments, that the doctrine which had been discarded as hypothetical, was still tenable, and, upon the whole, the better of the two. Finding himself in circumstances favourable to the resumption of those labours which had been interrupted by the afflicting events that led to his removal to this land of peace, he entered once more upon his former researches, and, by repeated publications of his opinions in the Medical Repository, strove to promote more patient and careful discussion. Some of these essays, it will be remembered, were directly in favour of what he had before advanced, and others in reply to the objections of his opponents. And after having waited three years to learn all that was urged in favour of the new theory, from its most powerful supporters on both sides of the Atlantic, and thinking all they had offered far from being sufficient for its support, he has republished, in the work before us, all that he thought important in the former publications, and offered it to the world as a demonstration of the doctrine of phlogiston, and a refutation of that of the composition of water. Prefixed to the body of the work is the address which he made, in 1796, to the leaders of the antiphlogistic sect at Paris; and also a second letter to the same persons, dated in October, 1803. There is likewise a new preface to the second edition.

The principal additions which we find are the *fourth* and *eighth* sections. The former of these treats of Mr. Cruickshank's hypothesis to account for the formation of inflammable air in the process of heating finery-cinder and charcoal. Dr. P. had made a reply to this gentleman, as long ago as 1801, in a letter to Professor Woodhouse. This, together with an address on the same subject to the editors, was printed in the fifth volume of the Medical Repository, p. 390, 393. He had made further remarks against Cruickshank's doctrine of *the gaseous oxyd of carbon*, in vol. vi. p. 24. To these our readers can easily turn. In the mean while we select for their improvement Dr. P.'s latest and most mature ideas on this point, in a brief quotation. (p. 27.)

"The two answers to my argument in favour of the doctrine of phlogiston, considered in the preceding section, go upon the proper principle of the new theory, viz. that whatever is *inflammable* in any kind of air must come from *water*. But Mr. Cruickshank seeing, no doubt, the impossibility of finding or decomposing water in the case, replies upon a principle entirely new; since he requires no water at all for the formation of the very great quantity of inflammable air that is produced in this process. He even maintains that this air, though it be evidently as inflammable as that from charcoal and water, is an *oxyd*, calling it the *gaseous oxyd of carbon*, supposing it to be formed by the union of oxygen from the finery cinder and carbon in the charcoal, but in a very circuitous way. For he supposes, in the first instance, that a quantity of fixed air is formed by the oxygen of the finery cinder uniting with carbon in the charcoal, and that this fixed air is decomposed by one of its constituent parts (viz. its oxygen) going back into the finery cinder, and re-converting it into iron; which iron, he says, by means of heat, decomposes the fixed air, so that part of its oxygen can unite with the carbon in the charcoal. Thus, he says, will be formed this *gaseous oxyd of carbon* without any water.

"This hypothesis, strange as it appeared to me, and even inconsistent with the most fundamental principle of the new theory, I found to be quite satisfactory to the original authors of this theory in France. One of the most eminent of them, in conversation with a friend of mine at Paris, said that "I had kept them for some time in torture by my objections to their system, but that they were entirely relieved by Mr. Cruickshank." In consequence of this information, I have given more attention to this hypothesis than many persons will probably think to have been necessary, and I have replied by stating the following objections to it, each of which I cannot help thinking abundantly sufficient to refute it.

"1. Mr. Cruickshank's hypothesis requires that, in the process of heating finery cinder and charcoal, the oxygen in the finery cinder should quit that substance, and unite with carbon in the charcoal, in order to form fixed air. Since, however, this fixed air is to be decomposed by iron, the oxygen which it has got from the finery cinder must be separated from it, and enter into the same calx again, for there is nothing else to receive it. But while the heat continues the same, I deem these contrary effects to be impossible. If the degree of heat that is applied expel oxygen from the calx, it will certainly pre-

vent its return. Consequently, if fixed air could be *formed*, it cannot be *decomposed* in these circumstances.

" 2. I see no occasion that Mr. Cruickshank had for the formation of this *fixed air*, which, after all, is merely *hypothetical*, as it cannot be exhibited in any part of the process. Why could not the oxygen in the finery cinder unite, in the requisite proportion, to form the particular oxyd required? For the hypothesis does not admit of a complete oxydation, since then it could not take more on being fired with dephlogisticated air. The finery cinder can only take from the fixed air the very same thing that it gave out to form it.

" 3. If it was possible for oxygen to be separated from finery cinder without any thing entering into it (which, I think, cannot be done), it would not, according to the new theory, form any thing by this union with carbon besides *fixed air*, this being said to be *carbon dissolved in oxygen gas*. Of this Mr. Cruickshank is sensible, and, therefore, he was under the necessity of supposing that, after the oxygen had quitted the finery cinder, it should in part enter into it again. But if this were possible, nothing would remain of the fixed air but *carbon*, as before that union. For the oxygen that was left in it could only unite with the same proportion of carbon, and this is always a *solid substance*, incapable, without the aid of oxygen gas, (or dephlogisticated air) of assuming the form of *air*. Whence, then, comes the *inflammable air* in this process, which so nearly resembles that from charcoal and water, that they must, of necessity, have the same origin? And, with respect to *this*, Mr. Lavoisier decides, that whatever is *inflammable* in it must come from *water*.

" 4. Admitting all that Mr. Cruickshank alleges concerning the difference in specific gravity, and other circumstances, between the air from finery cinder and charcoal, and that from water and charcoal, it is not so great as the difference between the latter and the light inflammable air from metals with acids or water. Different as they may be in other respects, they are all *inflammable*, having the common property of uniting with oxygen in a certain degree of heat; in consequence of which they are alike the very reverse of *oxyds*, and must be classed with *combustible* substances, equally with sulphur and phosphorus.

" If this kind of air was a real *oxyd*, it would appear to be so on the decomposition of it, when, to make the result unexceptionable, the oxygen it contained would either take the form of dephlogisticated air, or become a component part of

some other substance into which oxygen is acknowledged to enter. But this has not been done. When it is decomposed by being fired together with dephlogisticated air, the fixed air which is then formed comes, I have no doubt, from the oxygen in the dephlogisticated air, and the phlogiston in this species of inflammable air; the same being the result, though not in the same degree, of firing the heavy inflammable air from charcoal and water, from oil, &c. &c. into which it is not pretended that any oxygen enters.

"It therefore appears to me to be an absolute abandonment of the most fundamental principle of the new theory to call the air from finery cinder and charcoal an *oxyd*. If substances be *combustible* in proportion to their affinity to oxygen, and their consequent readiness to unite with it, this air, which is inflammable, must be of *this* class, and, therefore, the very reverse of the *oxyds*, which are saturated with oxygen, and incapable of receiving more.

"5. If the oxygen, after quitting the finery cinder, entered into it again, it would make it finery cinder as at the first, or at least in some degree; whereas the calx is completely revived in this process, the iron so revived being as soluble in acids as any iron whatever.

"6. If the iron should be completely revived by the oxygen wholly leaving it, I maintain that it could not, by any degree of heat, decompose fixed air. For my experiment with a *burning lens*, in which it could not be done, is far more unexceptionable than Mr. Cruickshank's with *bladders and a gun-barrel*. His objection to my process has no weight. It was made with only a very few ounce measures of the air, over mercury, with a lens sixteen inches in diameter, and was continued several hours, generally from ten o'clock to one; so that no particle of the air could escape being exposed to a far greater degree of heat than could be communicated through a gun-barrel.

"His experiment I have frequently made, both in England and here, but I could never be satisfied with the result. The *scale* which he found upon the iron, I have no doubt, came from *moisture* in the air, or from the bladders. Indeed, I cannot think that any person, conversant, as I have been, with both these modes of operating, can hesitate in declaring that the preference must be given to mine.

"7. Mr. Cruickshank seems to think that charcoal cannot contain any oxygen; but Mr. Tenant's fine experiment decisively proves that it does. For where are we to look for the

oxygen (which we all acknowledge to be a component part of fixed air) which is separated from the marble, but in the charcoal which is produced? And in that it makes part of a *solid substance*, and does not take the form of *air*.

"8. Since oxygen and all combustible substances unite, and explode together in a certain degree of heat, the oxygen that is expelled from the finery cinder, uniting with carbon from the charcoal when *red-hot*, must enable it to burn; and, therefore, in these circumstances, there ought to be an *explosion*, or, at least, a gradual *combustion*, of them in the course of the process, as there is when oxygen is put to the same substance, and heated with it afterwards. Here, however, oxygen meets carbon, a combustible substance, in a red heat, without any explosion or combustion taking place.

"Thus do the antiphlogistians boast of the discovery of a *new oxyd*, when they are unable to prove that it contains a particle of oxygen, and when its obvious properties show that it belongs to a class of substances the very reverse of oxyds. If the *discovery*, as it is called, relates to the *substance*, it belongs to me. All that they can pretend to is having given a better account of the *nature* of it; and with what success they have done this let the impartial reader judge."

On examining the *eighth* section, we find it to be a republication of the experiments on heating manganese in inflammable air, which were addressed to Dr. Mitchill in 1800, and published at full length in the fourth volume of the first Hexade of the Medical Repository, p. 135. Of this piece, so readily accessible by our readers, we deem it unnecessary to make any extract. In Med. Rep. Hex. I. vol. v. p. 153, Dr. P.'s theory of the pretended decomposition of water by the Voltaic pile may be seen. In the latter part of the eleventh section of the performance now under consideration, he explains the phenomenon by deriving the oxygenous air from the incumbent atmosphere, and the inflammable air from the zinc decomposed in the process; and rejects altogether the resolution of water into these two substances, as the vulgar hypothesis requires.

Before we dismiss this subject, we think it proper to state, that Dr. P. though he has formidably assailed the neologists, has not given the clear account or definition that might be wished of his phlogiston. On a former occasion (see Med. Rep. Hex. I. vol. i. p. 514) Dr. Mitchill had proposed to him to confine it to the hydrogen of his opponents, or the basis of inflammable air; and by thus giving to phlogiston a

definite character, and striking hydrogen out of the nomenclature, to put an end to a great part of the controversy, which seemed little else than a war of words. This interference of a neutral power to bring about a peace was, however, rejected by both the belligerents, and the strife renewed. The parties were not in a pacific mood, as appears by the first paper in the Appendix to the present publication.

But the obscurity which shrouds the phlogiston of our author by no means proves his adversaries to be right. For when they assert that sulphur and phosphorus are simple bodies, we believe they contradict plain matter of fact. In like manner, when they affirm that metals, in their ordinary state, are also simple substances, we have no hesitation in believing they sacrifice truth to hypothesis. To us it is as evident as any thing which appears on the subject, that sulphur, phosphorus, and certainly the greater part, we believe all, the metals are compounds. And we hesitate not to deliver our opinion, that the famous experiments on the composition and decomposition of water, are far from being as conclusive as may be wished; and stand in need of much more care in making, and of candour in relating them, than has hitherto been shown. We have reason to think lime, pot-ash, and soda, as well as ammoniac, are compounds; that the important article of azote wants amendment; and, in short, that the whole table of the French nomenclature, having been too hastily compiled, requires speedy and careful revision.

MEDICAL & PHILOSOPHICAL NEWS.

DOMESTIC.

INTELLIGENCE FROM TRIPOLI.

Treatment of the Fredish Captives in Tripoli; and the beneficial Effects of Carbonate of Soda in curing the Dysentery with which they are afflicted: extracted from a Letter of Jonathan Cowdery, Surgeon's Mate of the Ship Philadelphia, to Dr. Mitchill, dated at Tripoli Prison, in Africa, January 18, 1804.

THE officers have been threatened, but have not been put to hard labour. Our seamen and marines are put to hard labour, and are lodged on the ground, without bedding, in a small stone building near the Bashaw's place of residence, the castle. We were all robbed, and stripped almost naked, when we were taken. We have since been enabled to purchase some of our clothing.

Dr. Ridgley's indisposition is such, that the duty of attending our sick devolves on me, which, by the loss of our hospital stores and medicine chest, and not being able to procure proper supplies since, is a very trying task. The complaints among our men have lately been chiefly dysenteric. On the third of this month there were twenty-one on the list with this complaint. Some of them were of a very alarming nature. On the night of the 4th instant, John Hillyard, a seaman of about twenty years of age, died very suddenly, which increased my anxiety to find something for the relief of our distressed countrymen. I obtained liberty of the Bashaw to go in search of medicine for the sick. I could find but one bottle of ol. ricini in Tripoli, and this had been taken from our ship. On the morning of the 5th instant, myself, our drogoman, and an armed Mamaluke, set out for the country, in search of something for our sick. On our passing the gate of the city, I saw the head of a man sticking on a perpendicular pole a few rods out of the city. It appeared as if recently severed from the body. On inquiry, I found it was the head of a Turk who had been accessary to the murder of the son-in-law to the Bashaw, who headed the army in

collecting the Bashaw's taxes in the back part of his dominions. Beyond this we came into an encampment of pilgrims, with about 1000 camels. They are lately from Mecca. They are to stay until the fast or rhamadan is over. They are then to proceed on to Tunis, Algiers, and Morocco. We next came into a burying-yard which is nearly one mile square. I attempted to go out of the road to examine some of the graves, but desisted when the drogoman informed me that Christians were not allowed to go on the ground where they buried their dead. We passed several fields that were enclosed with mud walls of about fifteen feet in height. The next place of much note was the Bashaw's garden, which is on a sandy plain about three miles from Tripoli. It is enclosed by a thick high wall of small irregular stones and mortar. It contains about five acres of ground, on which there stands a building called a palace. It is large, without regularity of architecture. The garden and orangery are in tolerable style: the fruit is very fine and delicious. The Bashaw resides here in summer. The gardener had orders to let me take what I wanted. I loaded the drogorman with balm (melissa), spearmint (mentha viridis), and sage (salvia, Linn.). Pursuant to your practice and recommendation, I made great inquiry for soda (natron), which is found in this country. I at last discovered a man who had collected several hundred weight of this precious antiseptic remedy of yours. I obtained some of it, and returned to our sick men. I dissolved ʒi. of it in a common porter bottle of water, and gave every dysenteric patient a table-spoonful of the solution. This I repeated every two hours for the first twelve hours; after which I adapted the dose to the urgency of the complaints.

January 6. Found many of the complaints alleviated.

January 7. All better but John Hammond, seaman. He discharges large quantities of blood. Gave him ʒi. ol. ricini, and then ordered him to continue the use of the alkali through the day. At eight P. M. pulse moderate; gave opium i. gr.

January 8. Found John Hammond much better; the discharge of blood almost stopped; stools less frequent. Six new cases this morning. None of their pulses require venesection. Gave each two ounces olive oil, then put them on the use of the solution of the native alkali. Observed cleanliness as far as was in our power. Procured mats for the sick to lie on.

January 9. All who have taken the alkali are on the recovery. Two new cases. Medicines as yesterday.

January 10. But nine on the list; the others are convalescent. Continue alkali as urgency requires.

January 16. One on the list with diarrhœa. Put him on the use of alkali, and he is in a fair way to recover.

There has been but little rain this winter, and the season is remarkably pleasant.

The natives of this place live to a great age. A man of 116 years of age came the other day and requested me to cure him of deafness, which at times affected one of his ears. He has the vigour of a man of fifty. There are many antiquities in this place; one of them is a large arch, with the following inscription:

IMP. CÆS. AVRELIO. ANTONIN. AVG. P. P. ET IMP. CÆS. L. AVRELIO. VERO. ARMENIACO. AVG. SER.—S. ORFITVS. PROCCOS. CVM. VTTEDIO. MARCELLO. LEG. SVO. DEDICAVIT. C. CALPVRNIVS. CELSVS. CVRATOR. MVNERIS. PVB. MVNERARIVS. IIVIR. Q. Q. FLAMEN. PERPETVVS. ARCV. —MARMORE. SOLIDO. FECIT.

THESAURUS MEDICUS.

We announce with pleasure that Dr. Charles Caldwell, of Philadelphia, is engaged in preparing to publish by subscription, a new work, to be entitled, "*Medical Theses, selected from among the Inaugural Dissertations published and defended by the Graduates in Medicine of the University of Pennsylvania, and of other Medical Schools in the United States: With an Introduction, Appendix, and occasional Notes.*" The first volume is now ready for the press, and will be published early in the ensuing autumn. It is intended annually to continue this work, at least to publish one, and, if sufficient encouragement be given by the public, two volumes in the course of the year. A collection of the best Medical Theses has long been wanted in the United States, and seems to be the only mode of rescuing from oblivion many valuable performances which otherwise must be lost. Dr. Caldwell's plan is calculated to embrace a variety of important objects, and will, we hope, be patronized by a liberal public.

AMERICAN DOCTRINE OF PESTILENCE.

An excellent Essay has been lately published at Philadelphia, by James Archer, M. D. of Maryland, on *the Effects of the Carbonates of Lime, Magnesia, and Pot-ash, in the Cure of General and Local Diseases.* In this the ingenious

writer has fully espoused Dr. Mitchill's nomenclature of *septon* and its *derivatives*, instead of the azote, &c. of the French chemists (p. 4); and has adduced many valuable facts in illustration of the efficacy of alkaline remedies in fevers and various other diseases (p. 18 & seq.). Their utility, both in the practice of medicine and surgery, is so ably pointed out, that this performance is highly worthy of being republished, and extensively distributed among both kinds of practitioners.

Since Dr. Archer has shown himself so able a supporter of these principles, it may not be uninteresting to give the names of those other gentlemen who have laboured honourably in the same cause.

1. WINTHROP SALTONSTALL wrote a Dissertation on *the Chemical and Medical History of Septon, Azote or Nitrogen, and its Combinations with the Matter of Heat and the Principle of Acidity.* Published at New-York, in 1796, in 68 pages 8vo.

2. WILLIAM BAY published a Dissertation on *the Operation of such Pestilential Fluids upon the large Intestines, causing the Disease termed Dysentery by Nosologists.* New-York. 8vo. pp. 109. 1797.

3. ADOLPH C. LENT printed a Dissertation, showing *in what Manner Pestilential Vapours acquire their Acid Quality, and are neutralized and destroyed by Alkalies.* New-York. 8vo. pp. 51. 1798.

4. Professor LYMAN SPALDING printed, at Hanover (N. H.) for the use of the students of chemistry at Dartmouth College, *a new Nomenclature of Chemistry*, in 1799; in which he adopts *septon and its derivatives in preference to azote, &c.*

5. SAMUEL BROWN, M. B. in the year 1800, submitted to public inspection, in Boston, his *Treatise on the Nature, Origen and Progress of the Yellow Fever.* In this the same principles were urged and supported with so much learning, and such a display of talents, that the trustees of the Humane Society voted to the author a piece of plate of the value of fifty dollars, with a suitable inscription. 8vo. pp. 112.

6. NICHOLAS I. QUACKENBOS defended a Dissertation in 1802, in which, by an induction of facts from dysentery, the same doctrine of pestilential fluids is illustrated. New-York. pp. 39. 1802.

7. RICHARD L. WALKER composed an Essay on the pestilential fluids of the human body; in which the same principles are strenuously maintained by a variety of new arguments and experiments. New-York. 8vo. pp. 53.

From these performances very instructive selections might be made by Dr. Caldwell for his Thesaurus Medicus.

NON-CONTAGIOUSNESS OF YELLOW FEVER.

Neither the Black-vomit, Serum, nor Saliva of Persons labouring under Yellow Fever, capable of communicating that Disease.

Dr. Ffirth, of Salem, in New-Jersey, has published a dissertation on malignant fever, with an attempt to prove that it is not contagious. In this he relates a number of experiments which he has made upon the matter of black-vomit, as discharged by persons labouring under that disease. These experiments are bold and decisive; and their author deserves the thanks of the civilized world for having made them. They prove that the dark-coloured fluid voided from the stomachs of those who are suffering the latter symptoms of that malady, is wholly innoxious. They agree in the main with the experiments on the same matter which we related in our Hex. I. vol. iv. p. 163. But this intrepid gentleman has carried them further than those, and, indeed, far beyond the trials of any other person. We recommend them to the careful consideration of the contagionists here and elsewhere.

Dr. Ffirth fed a dog for a week on bread soaked in black-vomit, and on the ejected black-vomit matter itself. He grew fond of his food, and enjoyed very good health. A cat was kept on similar diet for five days. She lapped the black matter with avidity, and had no symptom of disease. Fresh black-vomit was inserted between the skin and muscles of a dog's back, and confined there. The wound healed by the first intention, the fluid was absorbed, and the creature continued healthy after this extraordinary inoculation. Dr. Ffirth then inoculated himself in the left fore-arm with black-vomit just discharged from a moribund patient; a slight inflammation ensued, which subsided in three days, and the wound readily healed. He confined some of the same dark matter, immediately after ejection, over a cut in his right arm, by sticking-plaster, for two days. On examination at the end of that time, there was no more inflammation discoverable than if the black-vomit had not been introduced. The wound readily healed, and without the formation of pus. To avoid cavil and deception, he repeated these experiments above twenty times, on various parts of his body, with the black matter collected in Philadelphia during the seasons of 1802 and 1803. He put it into his eye without experiencing more inconvenience

than cold water produces. He exposed himself to the exhalations of it, while acted upon by heat in an iron skillet, and experienced no unpleasant sensation. He swallowed the thick extractive matter which remained after evaporation in the form of pills, without incommoding his stomach. He even went so far as to mix half an ounce of fresh black-vomit with an ounce and an half of water, and to drink it. It produced no more effect on his stomach than so much water. He increased the dose to two ounces; and finally swallowed the black-vomit in like quantity, without any dilution at all, and without sustaining the least injury. He inoculated himself with saliva and serum with as little inconvenience! !

PESTILENTIAL SHIP.

Manner in which the Pestilential Poison engendered on Shipboard is conveyed from one Port to another.

We particularly request our readers to turn to the 86th page of the first volume of our second Hexade, and to peruse the facts there stated concerning the British ship Hibbert, which brought pestilential ingredients within her to New-York. This was one of the most abominably nasty vessels which ever floated on the ocean, and had accumulated, after the manner of other ships, her nastiness within herself, during a series of voyages. Though she arrived direct from Portsmouth, in England, we did not, according to the custom of the contagionists, blame the inhabitants of Portsmouth for the uncleanness of a vessel which sailed from their harbour; well knowing that the nastiness of a ship and the sickness of a crew on a voyage have no manner of connection with the state of health in the place or country whence she may have come. Ships are themselves the great manufactories and vehicles of pestilence.

The Hibbert sailed from New-York, as foul as Styx or Cocytus, for Honduras. As was predicted, she continued to be an unhealthy vessel. The consignee at New-York was informed that several of her people died on the passage. After her arrival at her place of destination, she was unloaded about two miles from the settlement of Honduras. While this work was going on, a number more of the persons employed on board fell sick and died of yellow fever. This sickness and mortality caused considerable alarm, which, however, as Mr. Bennet, the consignee at Honduras, relates, soon subsided, the distemper not spreading. The inhabitants of Honduras, who extol the healthfulness of their own settlement as

much as the people of New-Haven or Philadelphia celebrate the wholesomeness of their respective situations, lamented the misfortune of importing that fatal distemper from New-York. As that was the port whence the Hibbert last sailed, it was necessary, according to the fashionable way of thinking, to make that place bear the blame of the antecedent mischief, which had for a number of years been accumulating within her, but for which New-York was no more blame-worthy than Portsmouth. Thus mankind deceive themselves, and, without considering the internal condition of a ship, send her to sea, although *they know her* to be foul and pestilential. This was the case with the Hibbert. She came nasty from England, and she departed nasty from New-York. But neither place ought to be vilified for the consequent sickness, any further than for the incivility, which no quarantine laws forbid or punish, of giving a clearance for a foreign port to a ship known to abound in pestilential poison. Is it not strange and wonderful, that, amidst all the rout which has been made about quarantines and health laws, there should be no regard paid to the actual foulness bred within a vessel outward bound to our neighbours, but only to the state of health of a crew just shipped, and of the inhabitants on shore?—events that have no more connection with the distemper shortly to break out within the ship, than the rottenness of her timbers has with the soundness of the posts and beams of the custom-house.

A SUBSTITUTE FOR CULINARY SALT CONTAINED IN ASHES.

In the seventh volume of the Asiatic Researches is a paper by Surgeon John Macrae, on the manners and customs of the Cúcis, Kookies, or Lunctas, a race of people that live among the mountains to the north-east of the Chittagong province, in India. Of this peculiar nation he relates a fact, which corresponds with the practice described in Med. Rep. Hexade I. vol. vi. p. 330, among the American Indians, of using pure and fresh wood-ashes in lieu of sea-salt, as a condiment with animal food. Mr. Macrae relates, that the Cúcis dress their victuals in earthen pots of their own manufacture. The hunter, however, in his excursions through the forests, boils his food in a particular kind of bamboo. *From the ashes of a different species of the same plant, he extracts a substitute for salt to eat with his victuals;* and with equal readiness he kindles his fire by the friction of one piece of bamboo upon another. The alkali acts first as a stimulus to the tongue and palate, and next as an antiseptic in the stomach and intestines.

PROGRESS OF IMPROVEMENT AT NATCHEZ.

By a pamphlet lately published, we learn that, in October, 1803, an association was formed at Natchez, under the title of "The Mississippi Society for the Acquirement and Dissemination of useful Knowledge." They have framed a Constitution, and enacted bye-laws for their government. And the Legislature of the Mississippi Territory, in November last, passed an act of incorporation in their favour. It is declared to be a public act, and is so liberal as to have no limitation either of time for which it shall continue, or of property which it may hold. The present officers of this society are,

ISAAC BRIGGS, *President.*
WILLIAM C. C. CLAIBOURNE, } *Vice-Presidents.*
WILLIAM DUNBAR, }
JOHN HENDERSON, *Treasurer.*
LEWIS KERR, *Secretary.*

We observe there are between thirty and forty regular members; and that the society has chosen the following gentlemen corresponding members: viz. Samuel L. Mitchill, James Madison, Robert R. Livingston, William Lattimore, Thomas Moore, Henry Tooley, John Sibley, and Silas Dinsmore.

ON TEACHING THE DEAF TO UNDERSTAND LANGUAGE, AND THE DUMB TO SPEAK.

The following account of the celebrated institution of Mr. Braidwood, in Scotland, was communicated to Dr. Mitchill some years ago, by Richard Bayley, Esq. the late highly valued and respected Health Officer of the port of New-York, to whom it had been addressed by one of his friends; an anxious father, who had placed an unfortunate deaf child under the tuition of that successful instructor of those who possessed not the sense of hearing. It was written at London, in 1781, and is now published with the desire that it may excite some attention to that class of persons, in our own country, who are considerably numerous.

"The extraordinary and curious nature of a discovery very important to the human race, induces me to be particular in giving you an account of the observations I had the satisfaction to make lately, on my visit to Mr. Braidwood's academy at Edinburgh, for teaching the deaf and dumb, as well as for removing impediments in the speech of those who hear; especially as I conceive, setting aside my own particular interest therein, that it is an object well worthy the consideration of

the benevolent part of the literati in every quarter of the world. Upon my first interview with my son, who was impatiently waiting to receive me, he very distinctly addressed me *vivâ voce*, with 'how do you do, my dear papa?' and several other questions and answers. I then delivered him a letter from his sister, which he read, without hesitation, not only in an audible manner, but with significant gestures accompanying his pronunciation of many words, such as write, letter, papa, &c. which plainly proved that his ideas of their meaning were as clear and just, as his articulation was proper and intelligible. I remained at Edinburgh near six weeks, and was every day at the academy. During this time I had the ineffable pleasure of marking the daily progress of improvement in my boy, and in the other pupils, as respected the knowledge of language, and the actual acquisition of that most distinguishing mark of rational beings, SPEECH; from which, by some unaccountable defect in the abstruse organ of hearing, they had seemed to have been irremediably precluded.

"By means of this interesting art, (from the creation unknown until this last half century) a certain portion of the human species is rescued from uselessness, ignorance, and lamentable inferiority, and rendered capable of every useful accomplishment, every degree of erudition, and all the advantages and pleasures of social conversation and enjoyment. I have seen many in this predicament; one of whom is a principal officer in the Custom-house at Leith, a very gentleman-like agreeable companion. There is, at present, one of these pupils at one of the Universities; and I have not a doubt that Charles, if he live to a state of manhood, will be as thorough a master of languages as any in this kingdom.

"As a specimen of the degree of proficiency to which such persons are capable of arriving, I enclose * one composition, among many that I have, consisting of twelve lines in poetry, written by one of them, on seeing GARRICK act a few years ago. You may depend upon its being absolutely the unassisted performance of one whom I know personally. Many authors have lately mentioned this institution as one of the most remarkable of the present, or indeed of any other time, viz. Pennant, Johnson, Arnot, Lord Monboddo, and others. Notwithstanding which, such is the astonishing nature of it, that it seems generally incredible.

"The powers and faculties of naturally deaf people vary, and are graduated as far as among others who have the sense

* This is unluckily wanting.

of hearing. But there appears in the former, an universal appetite for knowledge; and, of course, what to young persons commonly seems a tax upon their time and pleasures, and is really a task, is undertaken with avidity by those, as the highest gratification; so fond are they of all sorts of learning. From this it is not improbable, I think, that among this class of men, some uncommon genius may arise, whose turn for study (and attention to pursuits to which want of hearing may be rather favourable than otherwise) may be so great and successful in the arts and sciences, as that he may arrive at new excellence, and not only eclipse the lustre of all others in some particular arts; but, what seems paradoxical, throw new light and perspicuity upon metaphysical researches, which persons with *all* their senses have never attained to. This, perhaps, you will think enthusiasm.

"It would be impossible to recite the various instances of mental and literary qualifications I have had conviction of. Suffice it to say, that Mr. Braidwood, by his ingenuity and talents, doth teach them, *in effect, to hear, and, in reality, to speak.*

"His method in general is this. He first instructs them to sound the vowels; next to place the tongue and lips in such positions, as to form with the consonants monosyllables. Thus, by perseverance and close application, he brings them gradually to know how to articulate any word that is expressed by characters, either in print or manuscript. And in this manner, by experience and great attention to his mouth, his pupils learn to understand, without hearing, what is pronounced or said. Consonant to this is the motto he hath adopted, VOX OCULIS SUBJECTA. His crest is A BIRD CHARMED BY A SERPENT.

"My son hath made uncommon proficiency for the time, not only in speaking, but in reading, writing, arithmetic, and drawing, and bids fair to make a respectable figure in life, notwithstanding his misfortune of deafness. Having referred several of my friends at New-York to you for these particulars, I will be obliged to you to communicate them to all such, and should wish, for the sake of humanity, that the knowledge of them might be universal."

CORRECTION OF SOME MISTAKES CONCERNING THE VACCINE CONTAGION.

Soon after the world was informed that the vaccine poison was a preventative of the small-pox, a disposition was shown

by many physicians and speculative men to extend its influence farther. They seem to have thought that the morbid action excited by the virus from the cow, could as well prevent other contagious distempers as the one for which it was particularly employed; and if it was capable of doing such good things in the human constitution, it would be no less operative in the bodies of brutes. Accordingly they said that the plague of Syria, &c. could be prevented by previous vaccination; and many of the more credulous who did not recollect that the plague is not a disease of contagion, seem to have given full credit to the story. It now appears, as might have been foreseen, that vaccination is no safeguard against the plague: for Dr. Valli, who made the experiment on himself, has since been seized with the plague.

There has been a report too that vaccination was an effectual bar against syphilis. Of this however we have heard no proof; and as far as our observations extend, the old enemy of the gentlemen of gallantry harasses them as sorely as ever. Should they be able to take shelter behind the vaccine, it would be a protection to which they might gladly betake themselves.

A report has been circulated that vaccination is a cure for *pertussis*. But as we have heard of but one instance of this, we must wait for further evidence on the subject of whooping-cough.

Communications were long ago made us that the *rot in sheep* could likewise be prevented by vaccination. These appeared to us so unlikely that we would not insert them in our work. We now find that we were right, since subsequent experiments have decided that cow-pock does not preserve these animals from that distemper. The operation which they call *clavelization* is quite fashionable, as Dr. De Carro writes, in some parts of Germany: but there are hitherto no experiments to prove that it is a preventative.

Equally fallacious are the expectations entertained of its effect in preventing madness and hydrophobia in dogs.

PLACES RESORTED TO BY FREDISH VESSELS FOR THE PURPOSE OF KILLING SEALS AND SEA-ELEPHANTS.

Our vessels employed in voyages for the catching of seals usually pass round Cape-Horn, and visit the islands of Juan Fernandez and Massafuero. At the latter of these, seals are said to be most numerous. Some seals are also taken at Falkland's Islands, Southern Georgia, Tristan d'Acunha, St. Paul's, and Amsterdam islands. But of late years they have been

found to be much more rare. And even at Massafuero, and the islands in its vicinity, they are no longer found in that abundance which prevailed when these voyages were first undertaken. Nevertheless, during the last ten or twelve years there have been many vessels of the United States engaged in this business. In 1800 and 1801, as many as ten vessels, principally from New-York, Connecticut and Massachusetts, were thus employed. Some of the ships are said to have been very successful in their voyages, insomuch that a single one has carried 60,000, and in some instances 100,000, seal-skins to the Canton market. Though the seal affords oil, it has not been customary to save it. They say that, though it is equal to whale oil, it will not sell profitably in China. If brought home, it would probably command as great a price as whale oil. Few of the skins are brought to the United States, except when a ship fails in her voyage, and is thereby induced to return home. They are generally carried to Canton, and bartered away for teas, silks, nankeens, and other Chinese produce or manufactures. The time necessary to complete such a voyage, and get back, is from twenty-four to thirty months.

The sea-elephant belongs to the same family with the seal. He is found on many of the uninhabited islands of the great Southern Ocean, particularly at Kerguelan's Land, which they frequent in great herds. They make little resistance, and, of course, are easily killed. Several of our vessels are said to have been engaged in their destruction. Their oil is found to be of an excellent quality; and not only answers for home consumption, but makes a valuable article of exportation.

THE THRESHER, OR LONG-TAILED SHARK.

The fish whose figure is here presented, was found on the south side of Long-Island in the autumn of 1803, by James Fairlie, Esq. He made a drawing and description of the animal,

and communicated them to Dr. Mitchill shortly after. It is evidently a different species from that figured and noticed by Pennant in his British Zoology. The creature being rare in these parts, we have thought proper to insert as particular an account of him as we could. The whole length of body and tail was thirteen feet and one inch. The skin, though thick as that of the common shark, was not at all rough, except a very little on the back. The colour was dusky or brown; and the shades darker on the upper side than on the belly. The tail was stout and elastic. Its superior edge was about three or four inches broad, and tapered away to nothing below. In this respect it had some resemblance to the fin of a sea-tortoise. The teeth were very sharp, of about three-fourths of an inch long, and formed but one row. The body was very cylindrically round, and possessed the great general features of the shark family.

AN OVO-VIVIPAROUS ANIMAL.

Peculiarities in the Anatomy and Physiology of the Shark, particularly as respects the Production of its Young. By Dr. Mitchill.

It has been known a long time, that the young of the shark had something in their structure considerably different from any other creatures, and figures of them have been given by Edwards, in his Natural History, and probably copied from thence into the Encyclopædia; but there has been, as yet, no dissection of these animals in this period of their existence, nor any explanation of their physiology, that I know of. This defect may be supplied by the explanation herein attempted of the structure and functions of the fœtus of a species of shark found frequently along the coast of New-York, in the waters of the Atlantic, during the summer months. About seven years ago, as I was engaged in a fishing party in one of the bays on the south side of Long-Island, a shark, between four and five feet in length, was taken in the seine, and secured in our boat, without receiving any material injury. Upon examination, this animal was found to be a female, whose uterus contained eleven young ones, of the size and figure represented in the plate. It forms the connecting link between oviparous and viviparous animals.

Besides these young ones that had advanced thus far in their growth, there were contained a large number of ova within the body of this fish, in different degrees of evolution and size, some of them resembling the full grown eggs of

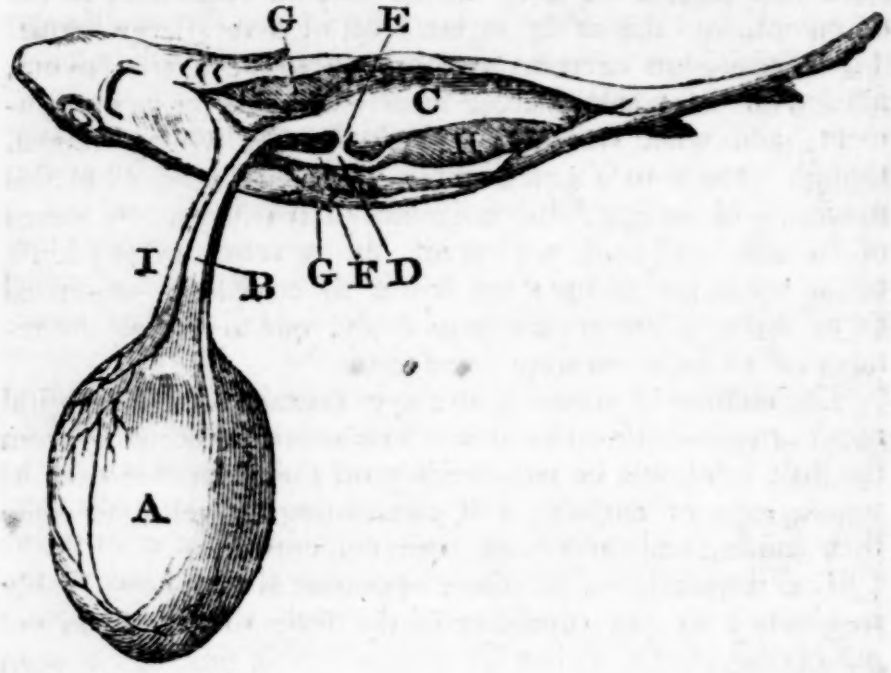
the tortoise, and others similar to the smaller rudiments of eggs found in the ovaria of laying hens. On opening the uterus with a knife, the young fishes, as represented in the figure, were found each connected with an egg, dependent from that part of the belly which may be considered as the umbilicus, and appearing in the form of a very large hernia. This hernia, on examination, proved to be a true ovum, filled with yolky substance, evidently intended for its nourishment; and what was very remarkable, the young animal, though grown to a considerable size, and connected in this manner with its egg, had no connection whatever by means of an umbilical cord, a placenta, or by vessels of any kind, to the uterus of its dam; but it was so completely organized as to derive no sustenance to its body, nor to receive any renovation of its blood from its parent.

The membrane covering the egg contained most beautiful ramifications of blood-vessels. The arteries descending from the little fish could be seen sending off their branches over its whole exterior surface; and terminating in veins, to unite their trunks, and carry back their contents.

The singularity of all these appearances was considerably heightened by the capability of the little sharks, when cut out of the uterus, to live for a considerable time in the open air. The larger part of the brood had been left on the grass of the shore where the dam had been dissected; but the three which I reserved for examination lived, and exhibited, during the greater part of the time, brisk motion for almost two hours, although exposed to the temperature of a common atmosphere. During this time, while they lay before me on a plate, nothing of the kind appeared more beautiful or distinct than the branches of blood-vessels shooting through and running over the transparent membrane of the egg; the blood evidently appearing to acquire a brighter scarlet colour, whilst the fish was thus exposed to the air, than it had possessed during the immersion of the young animal in the fluid of the uterus. It seemed to have acquired more rapidly, and to a greater quantity than before exclusion from its maternal membrane, the oxygen of the air to which it was exposed; the union of which with the blood seemed to have brightened its colour, and imparted to it, at the same time, so much of a stimulant quality as to have shortened the duration of its life by excessive excitement.

The internal structure of the fœtus of this shark may be seen in the plate. The dissection was made by my colleague,

Mr. Post, Professor of Anatomy in Columbia College; and the drawing was executed, immediately after, by Dr. Alexander Anderson, of New-York, in the presence of the late Dr. Elihu H. Smith, Mr. William Dunlap, and Mr. Thorne.



In this drawing,

A represents the ovum, with its exterior membrane dissected off.

B the internal tube or duct extending from the egg to a sac or reservoir of nutriment within the body of the fish.

C the sac alluded to in B, of considerable size, and occupying a good deal of room in the abdomen: it was filled with a pulpy or soft matter, evidently derived from the ovum, and apparently a little more elaborated, and prepared for nutrition by some concoctive operation in the sac itself.

D the stomach, as yet not distended; of course exceedingly small; having never, as yet, been filled with food derived from the mouth. In the plate will be seen a small passage or opening,

E, through which the alimentary matter in the sac, C, passes into the stomach, to be absorbed afterward by the lacteals of the intestines.

F the œsophagus, of nearly the same size with the stomach.

G G the two lobes of the liver.

H the cloaca, or gut stretching towards the anus, and filled with the refuse matter of the alimentary mass.

I the external membrane connecting the egg with the fish, cut through and turned back.

A species of shark, called *catulus major vulgaris*, is delineated by Edwards, but appears to be different from this. He has taken two views of the parent animal, and two more of the young. From the figures there given, it would seem that the same law of generation obtained as in this species. All the species probably breed in the same way.

There is a great variety in the multiplicative process of living beings. The female RANA PIPA, or *Surinam frog*, nourishes its young in certain cells or cavities in her back, and not in the womb. The OPPOSSUM of this country supports her young appendant to the teats, within the paunch or sac, called a false belly. The KANGAROO of New-Holland has somewhat of a similar structure and economy. More extensive and penetrating inquiries show the exceptions to the common mode of generation to be almost indescribably curious and diversified. We see no end to the variety of ways in which the perpetuation of the species is carried on. Even Spallanzani (5 Viaggi alle due Sicilie, &c. p. 46), though he went to the Lake of Orbitello on purpose to examine the anatomy of the large eels which live there, could discover in them no appearance of sex.

DISCLOSURES IN MINERALOGY: FROM SPECIMENS BROUGHT TO DR. MITCHILL.

1. *Gypsum from Upper-Louisiana.*

Among the productions of this newly-acquired country is to be reckoned plaster of Paris. Specimens of a very pure gypsum have been brought from about 150 leagues up the Missouri. It is said to exist there in abundance. This, in process of time, will amply supply that inland country with the sulphate of lime for all the purposes of agriculture, architecture, and the other arts. It is remarkable how scantily gypsum is scattered through Fredonia. Except some small parcels which have been brought from St. Mary's, between the Patuxent and Potowmac, in Maryland, some other samples from the town of Marcellus, in Onondaga county, New-York, and some other pieces obtained from the bed of the river below the Falls of Niagara, we have hitherto seen but few traces of this valuable stone in the United States. It is owing to the scarcity of plaster of Paris within our territories, that we are obliged to import the greater part of what we

consume. And the principal portion of the great quantity employed in constructing houses and manuring lands is brought from the British dominions bordering on the Bay of Fundy. It is to be hoped that, among the mineral treasures of our country, there may still be discovered a plentiful supply of this precious article.

2. *Asphaltum from the Isle of Cuba.*

A sort of mineral pitch has been brought from the neighbourhood of Cape St. Antonio, in the Island of Cuba, where it is said to exist native in considerable quantity. The specimen we have is compact and very brittle. It breaks angularly, or rather with a concavo-convex fracture. It feels smooth, but not greasy; and repels water. Its blackness equals that of common pitch; and it sinks when put into common water. It melts easily at the flame of a candle, and takes fire like sealing-wax. In a common temperature it smells strong and disagreeable; and this odour is increased by the vapour which it emits while burning. This substance seems nearly to resemble the bitumen, pitch, or asphaltum, which is found in Trinidad, and which, perhaps, is more plentiful there than in any other part of the world.

3. *Marble from Massachusetts.*

Quarries of marble have been opened in Stockbridge (Mass.) Its quality is so good as to make it an object of demand. The corporation of the city of New-York have ordered large quantities of it for the construction of their new hall; which, with perhaps the exception of the capitol at Washington, will be the most magnificent building in the nation. This stone is of a rather coarse crystallized grain; of a white colour, rather inclining to blueish; and is intended for outside work, which will not need polishing, but only rough-shaping from the chisel. There is a stratum of marble and lime-stone extending from Stockbridge, through the western range of towns in Massachusetts, quite to Bennington, in Vermont; a distance of more than forty miles. From this extensive body, various qualities of this valuable stone could doubtless be procured, differently veined, shaded and coloured, and of different degrees of fineness and hardness.

4. *Green Serpentine from Newport (R. I.)*

Specimens of a stone of the magnesian order have been brought from a quarry very near the town of Newport in Rhode-Island. It smooths and polishes well, and possesses a fine grain. Its predominating colour is a dark green, which

is relieved by spots of a paler green, verging in some parts toward a yellow or whitish. It is considerably heavy. From these qualities it may be pronounced an handsome serpentine, and apparently well worthy of being worked. Hopes are entertained that the quarry will be further opened, and fair and larger trials made upon the fine and valuable material which it contains.

5. Foliated Ore of Copper from Woodbridge (N. J.)

Pieces of a very pure native copper have been procured lately near Woodbridge, in New-Jersey. The matrix of the metal is a dark-coloured or blackish kind of rock. This, however, is very brittle, and may be easily broken by an hammer, or even crumbled to pieces by the fingers. The metal, in its proper form, is dispersed through this earthy mass. In some parts the copper is dispersed through every part in the form of specks resembling filings, which shine when the ore is broken; but a more common appearance is that of leaves or plates of native copper, which are interspersed between the laminæ into which the stone breaks, and present bright and beautiful surfaces. Some of these natural films or sheets of the metal are almost as thin and delicate as gold leaf; while others are so thick and extensive as to resemble rolled copper or old sheathing. Now and then the workmen find more solid and ponderous masses. Efforts are making to discover more of this remarkable deposition of copper.

MURRAY'S ENGLISH GRAMMAR.

Few literary performances of the present day have been more favoured by the public than those of Mr. Lindley Murray, formerly of New-York, but now of York in England. We made respectful mention of some of these on a former occasion, in the fourth volume of our first Hexade, p. 307. The *Grammar of the English Tongue* in particular, and the other grammatical works of this amiable and intelligent writer, have grown into high repute. The demand for the former of them is so frequent, that already a ninth edition is published. This contains many corrections and additions, by which it is greatly improved, as well as somewhat enlarged. In Great-Britain the sale and circulation are uncommonly rapid and extensive. And as a mark of the good opinion entertained of it in the author's native country, the professors of the colleges at New-York, Princeton, and New-Haven, have

adopted it as an elementary book of instruction in their respective seminaries. A work so well calculated to be useful and popular, so judiciously arranged, and executed with so much taste and critical skill, well deserves to be put into the hands of every person who studies the language which it is intended to elucidate.

DR. SCANDELLA'S VERSES ON THE FALLS OF NIAGARA.

Of the extraordinary merits and untimely death of J. B. Scandella, we made mention in our Hex. I. vol. ii. p. 226. There is a poetical effusion of this traveller, who was destroyed by the yellow fever in New-York, at the moment of his departure for Europe. The subject of the verses is the cataract of Niagara. Their object was a lady living in the garrison near the falls. Having procured a copy of this little poem, we insert the original Italian with an English version, hoping they may gratify the feelings of some of his surviving friends.

La Cascata di Niagara.

Giunta al confin dove il petroso letto
In voragin si cangia ampia e profonda,
Curva a un salto precipita giu l'onda
Da non salsi ocean spinta allo stretto.

Rotto con fragor cupo, in suso e astretto
Il flutto rimbalzar, che l'aere innonda
Disciolta in fumo al ciel par si confonda
Sotto i pie trema il suol, l'alma in petto.

Con passo incerto quell abisso immenso
Da una rupe a mirar fami; e a quel imi
Orror rimani istupidito il senso.
Sul nebbioso volume indi a sublimi
Voli in ergo; a calcar natura io penso;
Tal che in me di mortal piu nulla estimi.

TRANSLATION.

The Falls of Niagara.

Borne to the rocky bed's extremest brow
The flood leaps headlong, nor a moment waits;
To join the whirlpool deep and vast below
The saltless * ocean hurries through the straits.

* Lake Erie.

Hoarse roars the broken wave;—and upward driven
Dashes in air;—dissolving vapours press'd
Confound the troubled elements with heaven;—
Earth shakes beneath;—heart trembles in the breast.

With steps uncertain to a jutting rock
To gaze upon th' immense abyss I hie,
And all my senses feel an horrid shock,
As down the steep I turn my dizzy eye.

On cloudy steams I take a flight sublime,
Leaving the world and nature's works behind,
And as the pure empyreal height I climb,
Reflect with rapture on the IMMORTAL MIND.

SPONTANEOUS ORIGIN OF THE RABIES IN DOGS.

The following remarkable facts are from a communication of Mr. Hannibal W. Dobbyn, to Dr. Mitchill, dated January 26, 1802.

"As I often reflect with attention on your doctrine of septon and on its effects, it appears to me that I shall be able to prove it to be the remote cause of rabies, hydrophobia, &c. in dogs. The following facts I adduce to support the assertion. In the autumn of the year 1782, a mania broke out amongst a pack of fox-hounds which I had in Ireland, consisting of thirty couple; they were kept in a kennel, enclosed by a wall fourteen feet in height. I lost the whole of them by it, as I found that any fresh dogs brought from nurse, when put into it, were seized by the disorder, without being bit by any other animal whatsoever. I threw down the walls on two sides of the square, and had the rooms, boiler, vessels, &c. well washed with soap and water, and afterwards with vinegar; after which the place remained unoccupied for six months. I then brought home twenty-seven couple of whelps from nurse; amongst which I was not a little surprized to see the disorder begin to make its appearance, in about a month after their arrival. I endeavoured to find out a cause in vain, for this disorder; it could not arise for want of a free circulation of air, as the walls were thrown down which might obstruct its progress; it could not proceed from the victuals, as I inspected them myself, and took proper care that they should be of the best sort, and that they should be well dressed and boiled. The back door of the stable opening into the kennel, the manure was thrown out into it: I observed that many of the dogs preferred sleeping amongst it, of a cold day or night, on account of the

heat produced by its fermentation, to sleeping in the rooms of the kennel. Such of the hounds that did so, I observed were always seized with the distemper, and that it originated with them; and also that dogs which lay in the litter with the horses in the stable were seized with it, while those who slept in the haggard, under corn stacks, or amongst the hay, always escaped. From these observations I was certain that this distempter was occasioned by putrefaction, but how I was unable to comprehend. I endeavoured to ascertain the cause by dissection, and opened above a dozen of those which died of the distemper. Besides all the other symptoms common in the mania, I found the fleshy parts of the liver in a state of solution; in proportion to the progress of the disease, the larynx, &c. most dreadfully constricted. May not the septic acid, taken up by those dogs from the dunghill and stable, be the cause of their madness, and, by dissolving the liver, the acrid effects of which operating on the larynx, cause that constriction which produces the hydrophobia? which can be, in my humble opinion, nothing else, but the highest degree possible of irritation of the nervous system, as a looking-glass kept in motion, before the eyes of a dog, produces the same effect on the system as water, into which, in a dark room, he will put his mouth, and endeavour to drink. And that those dogs were infected with the rabies, is confirmed by this proof, that all animals bit by them went mad (two cases excepted) in about fifteen days."

WHALE-FISHERY OF THE UNITED STATES.

This branch of business seems to be less inviting and profitable than it formerly was. Whether this is owing to a scarcity of whales, to greater exertions of other nations, or to the inferiority of the market at home, and high duties abroad, we need not examine particularly here. The decline of the whale-fishery among our people is probably to be ascribed to the operation of all these causes, as well as to bounties and immunities granted by some of the European powers so generously as to tempt many of our most enterprising whalemen to engage themselves and their capitals in foreign service. This latter is without doubt a great cause. The following statement will exhibit a tolerable view of the subject.

In 1799 there were engaged in the whale-fishery of the United States twenty-six vessels, amounting to 5055 tons; in 1800, seventeen vessels, making 2814 tons; in 1801, fifteen vessels, not exceeding 2349 tons; and in 1802, twenty vessels, rising to 3201 tons.

Of the twenty vessels employed during 1802, one belonged to Sagg-Harbour, one to Boston, six to New-Bedford, and the remaining twelve to Nantucket.

In 1791 there were exported 134,595 gallons of spermaceti oil, and 447,323 gallons of right whale oil; 182,400 pounds of spermaceti candles, and 124,829 pounds of whalebone. In 1802 they were reduced to 28,470 gallons of spermaceti, and 379,976 of right whale oil; 135,637 pounds of spermaceti candles, and 80,334 pounds of whalebone. During the intermediate years the quantities varied considerably, being sometimes higher, and then lower.

The average quantity of each article exported during a term of twelve years, is about 106,493 gallons of spermaceti oil, 573,941 gallons of right whale oil, 197,967 pounds of spermaceti candles, and 191,334 pounds of whalebone.

COD-FISHERY OF THE UNITED STATES.

This employment appears to be rather on the increase. Notwithstanding the abundance of business which might be followed on shore, in a country having so many millions of unappropriated acres, there are found plenty of people who prefer the catching of fish along the coasts and on the banks. Government allows a certain bounty on the tonnage of the vessels engaged in the cod-fishery, in lieu of a drawback upon the salt used in curing the fish.

The exports, in 1791, amounted to 383,237 quintals of dried, and 57,424 barrels of pickled fish. In 1802 these exports had increased to 440,954 quintals of dried, and 75,819 barrels, and 13,229 kegs of pickled fish.

In 1802 there were 1140 vessels, making 39,399 tons of shipping, and carrying 4533 men, actually occupied in this branch of business; in which estimate are not reckoned boats and craft under the burthen of five tons, nor the men navigating them, which are very numerous from various parts of the coasts and islands, and latterly much on the increase.

It must, however, be remembered, that a large quantity of the salted fish which is exported from the United States is originally imported from New-Brunswick, Nova-Scotia, and Newfoundland. What the amount is which ought to be deducted for this fish caught by British subjects, and brought to Fredish ports, we have it not in our power correctly to state. If the truth was known, it would probably be found that the cod-fishery is on the decline as well as the whale-fishery.

TONNAGE OF VESSELS FREQUENTING THE PORTS OF THE UNITED STATES.

By a statement made by the Register of the Treasury, and addressed to the Secretary of that department, dated February 13, 1804, it appears that the district tonnage of the United States amounted, at the commencement of the year 1803, to 864,577 tons. These consisted of the following particulars, to wit: corrected and registered tonnage, 560,380; enrolled and licensed vessels, 261,318; and of fishing vessels, 42,879 tons.

The tonnage of foreign vessels which entered the ports of the United States, as we learn from a communication of the Secretary of the Treasury to the Chairman of the Committee of Commerce and Manufactures, January 19, 1804, amounted, during the year 1802, to 146,779 tons. Of these, 104,262 tons belonged to the subjects of Great-Britain, 12,980 to the Hanse Towns, 8582 to Spain, 7659 to France, and the rest chiefly to Denmark, Prussia, Sweden, and Portugal.

LIGHT-HOUSE ESTABLISHMENT OF THE UNITED STATES.

Few coasts are better supplied with light-houses than that which lies between Portsmouth and the Island of St. Simon's. Of these conveniences to mariners, New-Hampshire contains one, at Portsmouth; Massachusetts thirteen, at Boston, Nantucket, Penobscot, Cape-Rouge, Thatcher's-Island, Plumb-Island, Portland-Head, Plymouth, Seguin-Island, Baker's-Island, Cape-Cod, Wigwam-Point, and Gayhead; Rhode-Island one, at Newport; Connecticut four, at New-London, Faulkner's-Island, Lynde's-Point, and New-Haven; New-York four, at Montauk, Gull-Island, Sandy-Hook, and Eaton's Neck; Delaware one, at Cape-Henlopen; Virginia four, at Cape-Henry, Smith's-Point, Old Point-Comfort, and New Point-Comfort; North-Carolina three, at Cape-Fear, Cape-Hatteras, and Shell-Castle; South-Carolina two, at Charleston and Georgetown; and Georgia three, at Tybee, Cumberland-Island, and St. Simon's.

The annual support of these lights, besides the charge of erection, amounts to about 60,000 dollars. To assist in defraying which, Congress, in imitation of the practice of the most cultivated governments, has imposed a small tonnage duty of fifty cents the ton on foreign vessels entering our ports. The details of all which may be seen in Dr. Mitchill's report to the House of Representatives on the subject, made Feb. 18, 1804.

PROVISION FOR SAILORS.

Report, presented on the fifth of March, 1804, *to the House of Representatives; by Dr. Mitchill, in behalf of the Committee of Commerce and Manufactures, on the Memorial of the Citizens and Mariners of Baltimore, concerning the Sufferings of American Sailors at home.*

The Memorialists state as a grievance, requiring a remedy, that seamen of the United States taken sick, or becoming disabled *after their arrival in port, and before reshipment upon another voyage*, are refused admittance into the infirmary, and denied the benefit of the mariner's fund, although such applicants may have heretofore paid hospital money conformably to law. The distress experienced by many seamen by this construction and execution of the law, is loudly complained of; and the interposition of Congress is solicited to save the wretched from their present distress, and to avert similar calamities for the future.

The seriousness of this complaint, proceeding from the suffering seamen of our country, has been contemplated with anxiety and concern by the committee. Their helpless and unfriended situation has been beheld not only with pity, but with an active benevolence, which, at the instant it finds that succour is necessary, exerts itself promptly and without hesitation to afford it. The spectacle of these useful citizens, who navigate the ships of our country on all their voyages in which national glory and national wealth are concerned, turned out of doors because they are sick and indigent, is too painful to be beheld without emotion.

The cause of these exhibitions of woe, so unpleasant to the feelings of individuals, and so calculated to affect the public sensibility, is worthy of being investigated. And the committee believe, that much of the evil complained of will be found to proceed from the *generalization* of the seamen's fund, by the act of May 3d, 1802.

A reference to the different statutes passed on this subject will satisfy the inquirer that this is the case. By the prudent and salutary provision of an act, passed July 16th, 1798, it is made the duty of the master or owner of every ship or vessel of the United States arriving from a foreign port, and before she shall be admitted to entry, to render to the Collector a true account of the number of seamen employed on board the vessel since her last entry, in any port of the United States, and to pay to the said Collector, at the rate of twenty cents a month

for every seaman so employed. The Captain is authorised to deduct this out of the sailor's wages. The like regulation was extended to the crews of vessels enrolled or licenced for the coasting trade.

The money thus paid by the seamen, was directed to be accounted for to the Secretary of the Treasury. And the President of the United States was authorised to provide for the temporary relief of sick and disabled seamen. *It was an express condition of this capital, that it should be expended only in the district in which it was collected.* And as it was judged that in some districts a surplus would remain over and above the needful expenditure, it was directed that such surplus should be vested in the national stock, for the purpose of accumulation, and of being enlarged by charitable donations, until proper marine hospitals could be procured for the *permanent* accommodation of sick and disabled seamen, or, what was better, until pensions could be assigned them.

To these excellent regulations another important one was added by the statute of March 2d, 1799. By one of the sections of this, the Secretary of the Navy was directed to retain in his hands, twenty cents a month from the wages of officers, seamen, and mariners, in the navy, to be paid into the Treasury, and expended for the same purposes as the money paid by seamen in the merchant's service, whether on foreign voyages, or in the coasting trade. But in that very statute, an unhappy diversion was made of these funds from their original destination. In some of the districts it happened that more money was expended than the sum collected within the same amounted to. This became in those places a matter of complaint: to remedy it, a great inroad was made. The expenditure which had heretofore been limited to the collection-district, was rendered lawful in any part of the State in which such district was situated, and within any *other State next adjoining*. There was an exception, however, as to the *four New-England States*. Thus was the surplusage in any one district in a great degree prevented, and the project of accumulating money enough for lasting and well endowed hospitals or pensions, by which the sick, wounded, disabled, or veteran seamen might have been provided for, and enabled to enjoy repose, almost altogether frustrated.

But even this encroachment upon the primitive design did not give entire satisfaction. Complaints were still made in a few places, that the supplies of money were inadequate to the wants of the sick and infirm seamen. And they were so loud

and reiterated that on the 3d of May, 1802, Congress listened to them, and declared by a law, the passing of which is ever to be regretted, that the monies heretofore collected, (that is ever since 1798) and unexpended, and all monies thereafter to be collected under authority of the before-mentioned acts, should constitute one general fund, to be employed as circumstances should require, in every sea-port in the nation. In consequence of this generalizing scheme, the pleasing surplusage that was accumulating in the ports of New-York, Philadelphia, Baltimore, and Boston, was broken down and drawn away, except a reservation of 15,000 dollars, for building an hospital in Massachusetts.

By this stroke, all the hopes of *permanent* provision for sailors with impaired limbs and exhausted constitutions, were blasted at once. No prospect remained but that of a *temporary* supply, furnished monthly, or from hand to mouth, as the tax was paid into the Treasury. The sums saved by the good management and rigid economy of the managers of them in some places, were not now, as before, treasured up for future benefit there, but serving merely as objects to tempt the cupidity of persons in other and distant places, they were melted down and absorbed in the GENERAL MASS. The diminution of the funds, in certain ports where it used to be most abundant, has led to a more strict scrutiny than has been usually practised heretofore, as to the admission of sailors to the benefits of hospitals. In some places doubts have been entertained, whether *unemployed* seamen ought to be allowed a participation of those advantages. In others, or one other, they have been refused unless the sickness or disability shall have accrued while they are in actual service. In consequence of this manner of construing and executing the law, uneasiness is manifesting itself in several of our most frequented and opulent sea-ports. Before the generalizing law, these expressions of dissatisfaction were few and local; since that event, they are growing more numerous, and even universal.

For an able and perspicuous view of the sums collected for the relief of seamen, and of the places at which they have been collected and expended, with a variety of other interesting and instructive particulars, the committee beg leave to refer to a report of the Secretary of the Treasury, made in obedience to a resolve of this House, on the 21st day of January, and now lying on the table. By this it appears, that in some places where money is collected, *none* is expended.

It is plain to the committee that the seamen of their country

ought to be distinguished when in distress, from common paupers. It was the intention of the government to consider them so. They, therefore, while they are in health and employment, pay something for their own support when they shall be sick and unable to perform service. The sums collected do not seem sufficient, or why should these unfortunate men be rejected as the memorial states? The committee, while it forbears to make any remarks on the sum of 33,401 dolls. expended at Norfolk, and 26,964 dolls. at Charleston (S. C.) requests that gentlemen will take the trouble to examine these swelling items of the account, while they note only 7,330 dollars are collected at the former of these places, and 15,843 dollars at the latter.

In order, however, to enlarge the means of relief as to *temporary* purposes, the following proposition is submitted, to wit:

That an additional sum of five cents per month be paid for hospital money, by the seamen and others in the foreign, coasting, and naval service, intended by the act of July 16th, 1798, and the act of March 2d, 1799.

And with the desire to provide some fund for the *permanent* relief of decrepid or superannuated seamen, exhausted in service, though not proper objects of a Sick Infirmary, it is recommended

That the first section of the act of May 3d, 1802, as far as the same respects the generalization of the seaman's fund, be repealed.

DR. WITTMAN'S ACCOUNT OF THE PLAGUE.

Our readers will recollect the notice we took, in our Hex. II. vol. i. p. 206, of Dr. Wittman's "Travels in Turkey, Asia-Minor, Syria, and, across the Desert, into Egypt, during the Years 1799, 1800, and 1801, in company with the Turkish Army, and the British Military Mission. To which are annexed, Observations on the Plague, and on the Diseases prevalent in Turkey, and a Meteorological Journal." London edition. 1883.

We now proceed, according to promise, to give a more particular account of the medical part of this performance; and for this purpose some of Dr. Wittman's more important facts and opinions relative to the plague will be delivered, as nearly as can be, in his own words.

"Notwithstanding all the experience of the French and others, still the precise nature and origin of plague appears to be involved in doubt and obscurity. Some have attributed it to the

stagnant waters of the Nile, and to certain vicissitudes of the atmosphere." Page 531.

"I was informed by a respectable and well-informed inhabitant, and a man of observation in Cairo, that after a plentiful inundation the plague was observed to prevail. Seeing that the country may then be compared to an extensive morass, or marsh, may it not be supposed, that from the decay and corruption of much animal or vegetable matter, a noxious gas may be generated and exhaled by an ardent heat of the sun, sufficient to produce contagion such as plague?" P. 531.

"Plague is sure to make its appearance annually in some part of Egypt or the other; either confining its baneful effects to the spot where it first broke out, or becoming otherwise diffused, and spreading like wild-fire through villages, towns, and districts, sweeping off the inhabitants in its progress. It has been known to rage fatally at Boulack, and disappear without entering Grand-Cairo, although a distance of only two miles. Such is the extraordinary nature of this disease, that it seems to defy all reasoning." P. 532.

"It is a well-known fact, that the plague disappears suddenly, and as suddenly reappears, without affording any apparent cause for these changes. This happened while we were in Syria, &c. with the Ottoman army." P. 533.

"From all that one has seen and heard, it would appear either that the virus of plague does not always possess the same activity or force, or that certain persons are occasionally insusceptible of its action: and also, that from the sudden appearance, as well as termination of the disease, the necessity of some powerful agent is implied, to put the contagion into action, and give it its full force, as well as to destroy its effects when present." P. 533.

"It is remarked by the inhabitants (of Egypt) that the disease (the plague) is more prevalent at Rosetta than in any other town or part of Egypt. The streets of Rosetta are extremely narrow and very dirty. The manner in which the inhabitants live crowdedly together, would appear sufficient, in a stagnant state of the atmosphere, in most of their towns, &c. to generate pestilential or malignant diseases. The very few comforts and conveniences which fall to the lot of the poorer class of the natives in Egypt, by far the most numerous, would lead one naturally to expect great mortality when the plague prevails among them. Dreadful examples are seen annually to happen." P. 525.

"When I was at Rosetta, in February, 1802, I perceived

swampy, boggy grounds near to the town, the ditches and small canals contiguous to which, and the gardens, had offensive stagnant waters within them. This observation, connected with a preceding one, that the plague prevails when the Nile is low, appears to render it probable that this disease is merely a malignant remittent fever. This will appear still more probable, when it is considered, that buboes and glandular abscesses are common in Syria, in cases where the plague is not supposed to be concerned." P. 525.

"At the termination of the plague-season, when one may naturally suppose that there is the greatest accumulation of infected materials, clothing, bedding, tents, &c. it is singular (unless heat be admitted as an useful agent in destroying contagion) that the disease should, as it were, disappear of itself, and that rather suddenly: An additional corroboration of the opinion that a marsh-vapour may be the cause of plague, and that plague is only a modification of remittent fever. The difference of opinion as to its contagious nature not being demonstrated, furnishes another circumstance in favour of the idea." P. 526.

"I have been astonished, says Dr. Wittman, at the indifference of the Mussulmen employed in the burial of the dead, to see them handle and touch the bodies of pestiferous subjects, as though they had died of common diseases. Every corpse of a Mussulman is regularly washed and shaved before interment; and these interments are complete nuisances, the body being scarcely covered by the earth. The putrid exhalations, therefore, from their cemeteries, or burial grounds, are prodigiously offensive in hot weather. The persons employed in the interments are, however, said to catch the disease occasionally, and die." P. 523.

Dr. Wittman was informed by a person long resident in Egypt, that plague appeared among the inhabitants in the following order. 1. Blacks and negroes; 2. Mamelukes and whites; and, 3. The natives of the country. P. 523.

On the 19th March, 1801, he thus remarks in his medical journal: "Since the 7th inst. the plague raged with fresh violence at El-Arish. It was stated that the Turks had lost, by this disease, the one half of their army, which consisted, some weeks before, of six thousand men." On the 31st of the same month, he observes, "the plague suddenly disappeared at the camp of El-Arish. The troops with the Vizier remained healthy."

His cases of *malignant fever*, several of which are narrated,

much resemble our yellow fever in symptoms, duration, and mode of termination. He mentions yellow skin, vomiting of matter resembling coffee-grounds, dilated pupil, dark stools and urine, &c. This disease affected the English troops, the Turkish troops, and the inhabitants of the place.

"In Constantinople, so defective is the police in point of cleanliness, that an incredible number of half-starved dogs, and the vultures, are the only scavengers." P. 17.

"The army of the Turks was so injudiciously encamped, that it was enveloped in putrid exhalations—the carcases of dead animals, such as camels, horses, and asses, being strewed among the tents, &c." P. 123.

"Mr. Spilsbury, a surgeon, asserted, that Major Fead, who died of the plague on board of Le Tigre, had, before his death, all the symptoms of Yellow Fever." P. 139.

"Animals, as well as men, suffered malignant diseases from the filth strewed through the Turkish encampment." P. 199.

"At the time when the plague raged at Jaffa, in 1800, there was a great mortality among the cattle. Even the dogs suffered from a violent inflammation and swelling about the genitals, &c." P. 531.

"An old barber-surgeon in Cairo died in the year 1801, from plague, at the advanced age of ninety-six years. This man had long been celebrated among pestiferous patients, attended, and bled them occasionally, and at the age of ninety-six years caught, for the first time, the infection under which he sunk." P. 520.

Dr. Wittman thinks that *a certain susceptibility is required to receive the infection of the plague.* P. 522.

BARON HUMBOLDT'S TRAVELS IN AMERICA.

The active mind of Mr. Humboldt had been engaged in experimental pursuits from a very early day. He had distinguished himself by his observations and inquiries in physics before he left Europe. In possession of juvenile vigour, a good constitution, an investigating and intrepid spirit, an understanding duly prepared by education, a facility in speaking modern tongues, amiable manners, and a communicative and social disposition, he obtained the patronage of the king of Prussia to enable him to enlarge the bounds of natural knowledge by travelling in America. For several years he has been engaged in exploring the southern part of the new world. Thence he came to Philadelphia to take a survey of some of its more northern regions. But after a few short tours through

some of the Middle States, he had been induced, by the impatience of the men of science, to return to Europe, and, with all convenient speed, publish the account of what he has done between the tropics. From this work, all the lovers of researches into nature have high expectations. By the following extract of a note to Dr. Mitchill, written just before the Baron sailed, there may be some hope entertained that he will revisit our continent: an expectation, however, which we fear almost too flattering to indulge.

"*a Philadelphie, ce 27 Juin*, 1804.

"Sur le point de partir pour votre belle ville, j'ai été forcé de changer de projet et de m'embarquer pour la France, où je publierai vraisemblablement mes travaux des tropiques. Il est bien douloureux pour moi de perdre l'occasion de vous voir de près et de vous dire avec quel interêt j'ai lu les ideés ingenieuses que vous avez énoncé dans plusieurs de vos memoires physiologiques. Je me flatte qu' accoutumé de courir d'hemisphere en hemisphere ma belle etoile me ramenera dans ce pays aussi interessant sous les rapports moraux et physiques. Je souhaite que vous conservez une santé précieuse aux sciences! Agréez les sentimens de la plus haute consideration avec laquelle j'ai l'honneur d'être,

"Monsieur,

"Votre tres humble et tres obeissant serviteur,

"HUMBOLDT."

TERMINATION OF THE URETERS OUTWARDLY.

Not many weeks since a female child was born in New-York, whose ureters, instead of terminating in the bladder, according to the usual course of nature, discharged the urine externally a little above the pubes. In this monstrous conformation the mons veneris seemed to be wanting, and a reddish carnosity to occupy its place. Through this there were two orifices, corresponding to the two ureters. The urine constantly trickled from them, except when, after a time of rest, the child suddenly struggled or cried, and then it would spirt forth from both openings in a continued stream. The presumption, of course, is, that the bladder is wholly wanting. The external genital parts partake somewhat of this odd configuration; and the umbilicus is considerably lower, and the anus further forward than common. In other respects the infant hitherto seems to be well formed, and in good health.

MALIGNANT DISEASE AT THE WALLABOUT.

About the 20th of last June cases of malignant fever suddenly appeared at the Wallabout, on Long-Island, at Mr. Jackson's ship-yard, near the navy-yard of the United States; where a large number of ship-carpenters and other labourers were collected, and where ship-building is carried on to a considerable extent. The East-River separates this place from the city of New-York.

Of the persons attacked with this disease, eight are said to have died; two of these, however, are believed, by many, to have been affected by other disorders. Two labourers were seized with it soon after quitting the ship-yard and making their way into this city: one of them recovered, and the other died at the Marine Hospital, where he had been sent as soon as symptoms of decided malignity came on.

Difference of opinion, as usual, arose concerning the origin of this disease; some ascribing it to imported contagion, or the foul condition of certain vessels recently arrived; others to the accumulated filth and crowded state of the dwelling houses at the ship-yard.

The vessels charged with the importation of the contagion were the brig *La Ruse* and the schooner *Greyhound;* the former from *Guadaloupe*, the latter from *Cape-François.* It appears, from incontestible evidence laid before the public by the health-officer of this port,* that the vessels in question came from ports which were in a very healthy state; that no malignant disease had occurred on their passage; that on their arrival here they were completely cleansed by ventilation, washing, white-washing, &c.; that the clothing, bedding, &c. of the crews had been carefully ventilated and washed; and that particularly the lime-stone ballast of *La Ruse*, which afterwards became the object of some ridiculous suspicions, had been perfectly washed as it lay in the hold of the brig, while she rode quarantine, by repeatedly taking in and discharging water in great quantities from along side.

Notwithstanding this remarkable, and, as it may possibly be thought by some, excessive scrupulousness in the health-officer, many reports of the uncleanness of these vessels were industriously circulated. It was asserted, in particular, that the disease appeared *after* the discharging of the ballast from the brig *La Ruse*, which was just mentioned; but it is ascertained that three or four of the worst cases commenced *before*

* See Dr. Rodgers' letter to the Mayor of New-York, dated July 6, 1804, published in the newspapers of this city.

this ballast was moved. It was likewise asserted that the crew of *La Ruse* went ashore to the grocery-store of Mr. Little, in whose house one of the first cases occurred, to purchase such things as they wanted: this, however, is positively contradicted by the testimony of Mr. Little himself, who declares (and whose certificate has been published) that no seamen or other hands from this brig had come to his house, or held any communication with his family, while she lay at the Wallabout. It was further asserted that the brig in question lay close to the house of Mr. Helms, in which one of the most malignant cases commenced on the 20th of June; whereas there is the best evidence that this vessel lay at the navy-yard of the United States, a distance of more than 150 yards from the spot referred to, until the 23d of the month, when she moved to the wharf near to Mr. Helms's house, a day or two *after* some of the most malignant cases had commenced. It would occupy too much of our time to mention and refute several other glaring mistatements concerning those vessels, which were collected and laid before the public with all the confidence of the most authentic facts.

It does not appear that a single person of those attacked with this malignant fever had been on board either of the vessels charged with the importation of it, or had held any communication with them, or any thing belonging to them. On the contrary, many persons, generally from five or six to seventeen or eighteen in number, were on board of the brig *La Ruse*, for the purpose of repairing her, from the time of her arrival till her departure from the Wallabout; not one of whom suffered any sickness. On board of the *Greyhound*, whose bilge-water was said to have been offensive at a particular time, and which, on that account, became an object of suspicion, there lived a family, consisting of a man, his wife, and several children, who all enjoyed perfect health while the sickness was prevailing on shore. To believe that these vessels could emit noxious effluvia to such a distance on shore, while, at the same time, so many persons on board of them remained in the best health, is to admit the incredible supposition that such effluvia are less pernicious in their concentrated state, near their source, than after being greatly diffused and diluted in the atmosphere. Besides, Mr. Middleton, with his family, lived nearer to the wharf where the suspected vessel lay than either Helms or Little; yet they all continued in perfect health, which must have been owing to their not being at all crowded, a circumstance very material, as will be pre-

sently seen, in the condition of the other families. It deserves also to be mentioned, that a large proportion of all the victims to this disease, and some of the earliest, were women, whose occupations did not lead them to the wharves, who were chiefly employed within doors, and who had not been concerned in washing seamen's clothes, or in any intercourse with them which could account for the communication of the disease.

But while the most decisive facts show that the disease in question could not have originated from either of the suspected vessels, or from any foreign source whatever, the local circumstances of the ship-yard itself, together with the condition of the inhabitants, will be found sufficient to satisfy any reasonable inquirer that the mischief was generated there.

A very high and steep bank, beginning a few feet from the houses inhabited by the sick, effectually deprived persons residing there of the benefit of all refreshing breezes from the south and south-west. The principal houses are so situated, with their rears to the eastward on the line of the navy-yard, that, for want of doors and windows on that side, they almost entirely exclude the north-east, east, and south-east winds. Two ships on the stocks, surrounded by their scaffolding, together with large quantities of timber deposited in different situations, prevented, in a great degree, the approach of currents of air from the west and north-west. From these circumstances it results, that the only wind which had free access to the ship-yard, or could ventilate it with any effect, was a north wind, which seldom blows during the hot season. The effect of these circumstances was strongly felt and acknowledged by the inhabitants of the place, who described, in striking terms, the unfavourableness of it to a free circulation of air, and their sufferings in consequence of the very hot and stagnant air they were obliged to breathe.

The boarding-houses allotted to the numerous workmen at this ship-yard were excessively crowded. The number of lodgers stowed in single rooms was, in several instances, so large that great danger must have resulted from this source, in a situation ever so favourable on other accounts. In one instance, it is asserted that nine labouring men, with their bedding, &c. were obliged to pass their nights in a room about ten or twelve feet square, with only one window and door. In several other cases which have been distinctly related, the degree of crowding was nearly as great. There was but one instance of a family at this ship-yard enjoying the comfort of

apartments sufficiently spacious and commodious in proportion to their number; and these all preserved good health, while the neighbours around them were sickening and dying.

The quantity of vegetable and animal filth overspreading the ground, and lying about the boarding-houses, taken in connection with the other circumstances of the place, was sufficient to generate great mischief. No plan of properly cleansing the yard seems ever to have been adopted; of course this filth has been progressively accumulating, and becoming more dangerous ever since the establishment at this place was first undertaken.

The number of persons at this place was sufficient to carry on the work of building two large ships, and of occasionally repairing others. Yet these workmen did not possess the convenience of a privy, the want of which must have added exceedingly to the other sources of the accumulation of filth.

When all these facts are considered in connection with the local circumstances of the spot, which rendered ordinary ventilation impossible, it will not appear strange that a malignant disease should have been generated at this place. There would be no reason to resort to the vessels for the source of the mischief in this case, even if the proofs of their clean and inoffensive state had not been so clearly established.

After the disease had continued to prevail for some time, the inhabitants abandoned all the houses where sickness had appeared, dispersed themselves in the adjacent neighbourhood, and caused the forsaken houses to be thoroughly ventilated and cleansed. In consequence of this the disease was suddenly arrested. And it deserves to be mentioned, that, on this as on all similar occasions, nothing like contagion was communicated from the sick who were distributed throughout the neighbourhood of the Wallabout, made their escape into New-York, or were sent to the Marine Hospital; although, in all these different situations, they were surrounded by nurses and attendants in the usual manner.

It is to be hoped, when all the circumstances of this affair are duly considered, it may have some effect hereafter in preventing the public credulity from being again so much abused, as it was in this case, by the fabrication of reports grossly unfounded, and which could answer no other purpose than to prop a declining doctrine, and to injure the reputation and commerce of New-York.

BOTANICAL AND NATURAL CHARACTER OF THE BLACK-GRASS, DESCRIBED IN OUR HEX. I. VOL. VI. P. 321.

The following notes on this valuable plant were communicated to Dr. Mitchill by that distinguished botanist, the Rev. Dr. Cutler, of Massachusetts.

Juncus bulbosus, black-grass.

Roots enlarged at the base of the culm; creeping.

Culms thread-shaped; somewhat compressed; longer than the leaves; from three to twelve inches high.

Leaves linear and channelled; striated, smooth. Points of the leaves generally dead at the time of flowering.

Capsules obtuse, ovate, brownish and glossy; three cells; many seeds.

HISTORY OF FOWL-MEADOW-GRASS.

An anecdote relative to the origin of this species of herbage is contained in a letter from President Meigs, of the University of Georgia, to Dr. Mitchill, dated Athens, December 24, 1803.—"Were I," says this learned philanthropist, "at liberty from other engagements, I would, in the morning of our day in the northern hemisphere, go to the sources of the streams of all the branches of the Altamaha with all the varieties of the seeds of the best grasses, and, silently and carefully as the Indian, with his rifle and tomahawk, watches for the favourable moment of *death*, I would commit to *life* the precious grain. This would, in a given period of years, cover all the banks with the excellent produce. Of this I remember a story often told by my father when I was but a boy. The *Fowl-meadow-grass* on Connecticut River is highly valued. The story is, that it was first seen on the river *Agawam*, which unites with the Connecticut's east bank near Springfield, and that it grew from the spot where an uncommon bird had perished. This grass has extended itself from Agawam to Saybrook."

PESTILENCE IN SPAIN.

Correction of some Mistakes in the Accounts given of the Epidemic Distemper in Andalusia (Spain) during the Year 1800.

In our Hex. I. vol. iv. p. 320 vol. v. p. 103, and in vol. vi. p. 63, we gave a particular account of this distemper at Cadiz and the adjacent country, translated from Spanish publications. Since that time, Professor Berthe, of Montpellier, has published an octavo volume of eight hundred pages on that disease. It is

entitled, "*Precis Historique de la Maladie qui a regnè dans l'Andalouste en* 1800." The work is the result of an inquiry made by three Professors of that French University, Berthe, La Fabrie, and Broussonet, who were sent into Spain to watch and trace its progress. They have given an alarming account of its contagiousness, of its importation from the West-Indies, and of its resemblance to the yellow fever of the United States. Now, the reader of this publication ought to understand that the three Professors arrived so late in the season at the sickly region, *that the distemper had disappeared with the cool weather of autumn before their arrival, and that they did not see a single case of it.* The book is made up chiefly of the accounts selected from the Spanish physicians; and it is easy to understand what credit is to be given to them.

To aid a delusive project of the times, acid fumigations were employed; and the natural disappearance of the disease on the appearance of frost was strangely ascribed to fumigations with acid gases. So it was pretended that the atmosphere was purified or disinfected by these useless, and worse than useless fumigations. But, to the credit of Dr. Berthe, it ought to be mentioned, that he appears not to have much reliance on the vapours of oxygenated muriatic acid, and he declares that its effects have been exaggerated, and spoken of in extravagant terms.

Scientific men in Europe begin already to see the vanity and deception of employing these acid fumigations in times of sickness. They will abandon them, and betake themselves to *alkalies*, as the greatest detergents, purifiers, and antiseptics in nature. And a good opportunity is now given them in France of considering the subject in a favourable manner, since the learned and experienced Dr. Valentin's *Traitè de la Fièvre Jaune* was published, in which that judicious physician adheres to the uncontagiousness of the yellow fever, and the excellence and power of alkalies to neutralize and destroy all manner of septic vapours.

MEDICAL COMMENCEMENT AT PHILADELPHIA.

At a medical commencement in the University of Pennsylvania, the following gentlemen were admitted to the degree of *Doctor of Medicine*; having previously submitted and defended their Inaugural Dissertations, on the subjects annexed respectively to their names.

STUBBINS FFIRTH, of New-Jersey—A Treatise on Malignant Fever, with an Attempt to prove its non-contagious Nature.

JAMES COCKE, of Virginia—An Attempt to ascertain the Cause of the extensive Inflammation which attacks wounded Cavities and their Contents.

JOHN RUSH, of Philadelphia—On the Causes of sudden Death, and the Means of preventing it.

AUSTIN BROCKENBOROUGH, of Virginia—An Experimental Botanico-Chemical Essay on two native Species of Laurus.

PHINEAS JENKS, of Pennsylvania—An Essay on the Analogy of the Asiatic and African Plague and the American Yellow Fever.

EDWIN A. ATLEE, of Pennsylvania—On the Influence of Music in the Cure of Diseases.

JOHN HOSKINS, of Virginia—Observations on that Form of Disease nosologically called Dysentery.

JOHN H. CAMP, of Virginia—On the Use of Mercury in Fevers.

JAMES ARCHER, of Maryland—On the Effects and Modus Operandi of the Carbonates of Lime, Magnesia, and Potash, in the Cure of general and local Diseases.

JOHN PARKER, of North-Carolina—On Fractures of the Leg.

ELIJAH GRIFFITHS, of Philadelphia—An Essay on Ophthalmia, or Inflammation of the Eyes.

WILLIAM DARLINGTON, of Pennsylvania—On the mutual Influence of Habits and Disease.

PETER MILLER, of Philadelphia—On the Means of lessening the Pains of Parturition.

WHITMELL H. PUGH, of North-Carolina—On the supposed Powers of Nature in the Cure of Diseases.

WILLIAM SHAW, of Philadelphia—A Practical Narrative of the Autumnal Epidemic Fever which prevailed in Philadelphia in the Year 1803.

The number of the above-mentioned dissertations, and the merits of many of them, exhibit, in a strong point of view, the flourishing condition and the extensive usefulness of the Medical School of Philadelphia. Nothing is now wanting to enable the American student of medicine to obtain all the advantages of a liberal and systematic course of instruction, without the expense and danger of crossing the Atlantic in order to attend the schools of Europe. In several respects, indeed, the advantages of instruction in our own country are greatly superior to the best that can be enjoyed in Europe. In America, the student of medicine is taught to distinguish and under-

stand the peculiarities of American diseases, and is made acquainted with principles and doctrines which have been developed in consequence of those peculiarities, and, therefore, have an immediate and important application to practice. In this country, too, the force of ancient prejudices is less powerfully felt, and new truths make their progress with less opposition and delay.

The zeal and enterprize exhibited by the learned medical Professors in the school of Philadelphia have conferred a distinction on that seminary, and attracted a concourse of students to it, which do honour to the United States, and cannot fail to elevate the scientific character of America in every part of the world where learning is respected.

POSTPONEMENT OF REVIEWS.

We are sorry to be compelled to postpone to the next number our review of Professor Barton's second Part of "Collections for an Essay towards a Materia Medica of the United States," and Dr. Mease's improved edition of Willich's "Domestic Encyclopædia."